Department of Transportation

REHABILITATION OF SEVEN GRAND CENTRAL PARKWAY BRIDGES BETWEEN UNION TURNPIKE AND COMMONWEALTH BOULEVARD

PIN X051.59, Contract D900057

CONTRACT DOCUMENTS
REQUEST FOR PROPOSALS

PART 5

SPECIAL PROVISIONS

Final February 14, 2023

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SP-1. SPECIAL PROVISION TO SECTION 100 OF NYSDOT STANDARD SPECIFICATIONS CONSTRUCTION AND MATERIAL

Amend Section 100 of the New York State Department of Transportation Standard Specifications Construction and Materials, in effect as of the Proposal Due Date, as described in Part 2, § DB 100 and as follows:

The following amendments apply to Section 100 of the New York State Department of Transportation Standard Specifications Construction and Materials in effect as of the Proposal Due Date:

A. All references to “Contractor” shall mean “Design-Builder”;

B. All references to “Bid(s)”, “Bidder(s)” and “Bidding”, shall mean “Proposal(s)”, “Proposer(s)” and “Proposing” respectively;

C. All references to “Contract Plans” shall mean “Contract Documents”;

D. All references to “the Engineer” or “the Engineer-in-Charge” shall mean the Department’s Project Manager or designated representative;

E. All references to a section, denoted by “§”, that is covered in Part 2, § DB 100, shall mean “§ DB”.

Replace Section 100 of the NYSDOT Standard Specifications Construction and Materials by Part 2, DB § 100, except as noted in Part 2, § DB 100.

SP-2. SPECIAL PROVISION TO SECTIONS 200 THROUGH 699 OF THE NYSDOT STANDARD SPECIFICATIONS CONSTRUCTION AND MATERIAL AND APPLICABLE NYSDOT SPECIAL SPECIFICATIONS

The following amendments apply to Sections 200 through 699 inclusive of the New York State Department of Transportation Standard Specifications Construction and Materials in effect as of the Proposal Due Date, and any NYSDOT Special Specifications referenced in Part 3, Project Requirements or which otherwise might be required during the design and construction of the Project, with the exception of Section 800 Specifications contained in Part 8 – Special Specifications:

A. All contact with Department staff or offices except for personnel assigned to the Project shall be through the Department’s Project Manager.

B. References to “plans” or “contract plans” shall mean “Design Plans” prepared by the Design-Builder.

C. There will be no measurement for payment except for Unit Priced items specifically shown in the Price Proposal. All Work will be paid on the basis specified in Part 2 – DB § 109.

D. All references to “Section 100” Specifications shall mean equivalent references to Part 2 - DB § 100 Specifications.

E. Delete the following phrases:

1) “deemed necessary by the Engineer”;
2) “to the satisfaction of the Engineer”;
3) “as determined by the Engineer”;
4) “subject to the approval of the Engineer”;
5) “as specified by the Engineer”;
6) “approved by the Engineer”;
7) “ordered by the Engineer”;
8) “established by the Engineer”;
9) “acceptable to the Engineer”;

Or similar phrases denoting instruction by or consent from the Engineer.

If the relevant information is not shown on the Design Plans or covered in the Project Specifications, the Design-Builder shall have the Designer change the Design Plans and/or Project Specifications to incorporate the missing information.

F. Delete references to “payment lines” and replace with “lines shown on the Design Plans.”

G. References to “Proposal” or “proposal” shall be interpreted to mean the “Contract Documents”;

H. Unless specifically stated otherwise in the Contract Documents, sampling and testing specified to be done by the Engineer or other Department staff, shall be performed by the Design-Builder’s Construction Quality Control (QC) staff;

I. “Submission” or “submittal” used in the design shall be subject to review and Department acceptance per Part 3, Section 5.8;

J. All references to “the Engineer” or “the Engineer-in-Charge” shall mean the Department’s Project Manager or designated representative;

K. All references to “Contractor” shall mean “Design-Builder”;

L. References to: “Deputy Chief Engineer Design, Construction, Technical Services”; any Division in Main Office NYSDOT; “Regional Director”; “Regional Design Engineer”; “Materials Engineer”; “Construction Engineer”; or any other similar title and role shall mean the Department’s Project Manager or a designated representative;

M. References to “Contract Award” shall mean Notice to Proceed;

N. References to “preconstruction meeting” shall mean “pre-work conference”;

O. There shall be no quality payment adjustments under this Contract;

P. In each Specification delete the sections titled “Method of Measurement” and “Basis of Payment”;

Q. Delete Table 619-7 – Basic Work Zone Traffic Control Non-Payment, in Section 619-5 – Basis of Payment and replace with the following Table

BASIC WORK ZONE TRAFFIC CONTROL NON-PAYMENT		
Original Contract Amount		Non-Payment Amount
From More Than	To and including	
$ 0	$ 500,000	$ 200
$ 500,000	$ 2,000,000	$ 400
$ 2,000,000	$ 5,000,000	$ 500
$ 5,000,000	$ 10,000,000	$ 750
$ 10,000,000	$ 20,000,000	$ 1,000
$ 20,000,000	$ 50,000,000	$ 3,000
$ 50,000,000	$250,000,000	$ 5,000
$250,000,000	$500,000,000	$10,000
$500,000,000	-	$20,000

R. Add the following to Section 648 – Subsurface Explorations:

"The Design-Builder shall be responsible to determine the nature, extent, and locations of subsurface explorations needed to obtain data and support subsequent analysis, design, and construction. The Design-Builder shall also be responsible for determining the adequacy of any subsurface exploration data provided by the Department to support its analyses, design, and construction and to supplement such data provided by the Department as the Design-Builder deems necessary.

"In planning and conducting its subsurface explorations, the Design-Builder shall comply with the technical requirements of Section 648, unless the Department agrees otherwise. The Design-Builder is not required to comply with the administrative requirements specified in Section 648".

S. Delete Section 697 – Field Change Payment;

T. Delete Section 698 – Price Adjustments; and

U. Delete Section 699 – Mobilization.

SP-3. CRITICAL PATH METHOD SCHEDULE

3.1 DESCRIPTION

The schedule submitted in accordance with DB Section 108-01 shall consist of preparing, maintaining and submitting a Progress Schedule using the Critical Path Method on Primavera P6 software, or newer release, which demonstrates complete fulfillment of all work including engineering, construction and administration of the Contract. All work to prepare and maintain the Progress Schedule shall be performed using the scheduling software application provided by the Department on network servers and accessed through the Internet with Department provided user accounts. The Design-Builder shall regularly revise and update the Progress Schedule, and

use it in planning, coordinating, and performing all work. Schedule activities shall accurately depict the entire scope of work to be performed to complete the project including, but not limited to, all work to be performed by the Design-Builder, consultants, subcontractors, fabricators, suppliers, the Department, and others, contributing to the project. The Design Builder shall submit Monthly Progress Schedule Updates and Weekly Progress Schedule Status Reports.

3.2 DEFINITIONS

Activity - A discrete, identifiable task or event that usually has an expected duration, has a definable Start Date and/or Finish Date, and can be used to plan, schedule, and monitor a project.

Activity, Controlling - The first incomplete activity on the critical path.

Activity, Critical - An activity on the critical path.

Actual Start date - At the activity level, the Actual Start date represents the point in time that meaningful work actually started on an activity.

Actual Finish date - At the activity level, the Actual Finish date represents the point in time that work actually ended on an activity (Note: in some applications areas, the activity is considered "finished" when work is "substantially complete."); at the project level, the Actual Finish date represents the point in time that the Design-Builder completes all work on the Project, and it is accepted by the Project Manager.

Baseline Progress Schedule - The Progress Schedule submitted by the Design-Builder that shows the plan to complete the Contract Work. The Baseline Progress Schedule represents the Design-Builder's plan at the time of Notice to Proceed for completing the Project.

Completion Date, Contract - The date specified in the Contract for completion of the Project or a revised date resulting from properly executed time extensions.

Completion Date Scheduled - The date forecasted by the Progress Schedule for the completion of the Project.

Constraint - A schedule restriction imposed on the Start or Finish date(s) of an activity that modifies or overrides an activity's relationships.

Contemporaneous Period Analysis Method – A technique for evaluating schedule delays or time savings. The analysis period for the purpose of these provisions shall be monthly in each regular progress update to the schedule.

Critical Path – The activities being on the longest path. In a project network diagram, the series of activities which determines the earliest completion of the Project.

Critical Path Method (CPM) – A network analysis technique used to predict project duration by analyzing which sequence of activities (which path) has the least amount of scheduling flexibility (the least amount of float). A scheduling technique utilizing activities, durations, and interrelationships/dependencies (logic), such that all activities are interrelated with logic ties from the beginning of the Project to the completion of the Project.

Data Date – The date entered in the Project Details, in the Dates tab, which is used as the starting point to calculate the schedule. For the Baseline Progress Schedule submission, the Data Date shall be the Notice to Proceed Date; for Monthly Progress Schedule submissions, the Data Date shall be the date up to which the Design-Builder is reporting progress , and is as directed by the

Department's Project Manager. Everything occurring earlier than the Data Date is "as-built" and everything on or after the Data Date is "planned."

Deliverable – Any measurable, tangible, verifiable outcome, result, or item that must be produced to complete a project or part of a project. Often used more narrowly in reference to an external deliverable, this is a deliverable that is subject to approval by the Department.

Design-Builder's First Day of Construction Work – The day the Design-Builder starts field work within the highway Right-of-Way, which is entered as a Start milestone activity in the schedule.

Design-Builder's Last Day of Work – The last day of physical work in the field, and the Design-Builder has demobilized (no longer has any presence within the highway right-of-way).

Design-Builder Workday - A calendar day scheduled for active prosecution of Contract work by the Design-Builder or the Design-Builder's representative.

Draft Baseline Progress Schedule – An optional schedule submission that reflects an outline of the schedule format and content proposed by the Design-Builder's Project Scheduler to comply with the schedule provisions in the contract to solicit early comments by the Project Manager, prior to the submittal of complete Baseline Progress Schedule.

Duration, Original - The original estimated number of workdays (not including holidays or other non-working periods) in which the work task associated with the activity is expected to be performed. (The number of calendar days may be different based on the calendar assigned to the activity.) For certain activities such as concrete curing, or others approved by the Project Manager, the calendar shall not reflect non-workdays.

Duration, Remaining - The estimated time, expressed in workdays (not including holidays or other non-working periods), needed to complete an activity that has started but has not finished.

Early Completion Schedule - A progress schedule will be considered an early completion schedule when the schedule submitted by the Design-Builder indicates a completion date that is earlier than the specified Project Completion Date, or when the Finish date of any Interim Milestone work activity is earlier than the date specified in the Contract. This includes, but is not limited to, activities subject to Incentive/Disincentive provisions and/or specific Liquidated Damages provisions, and Lane Rental activities.

Early Dates – The earliest date an activity can start, or finish based upon logic and durations. Calculated by the software application when scheduling the Project.

Enterprise Project Management Database (EPMD) – The Department's database of construction project Progress Schedules.

Final Baseline Progress Schedule - The plan, accepted by the Department, against which the Design-Builder's progress is measured. The Final Baseline Progress Schedule represents the plan, after Notice to Proceed is issued to the Design-Builder, of how procurement, design and construction is expected to proceed. Once the Final Baseline Progress Schedule is accepted by the Department's Project Manager it is saved and used as a basis to compare against Progress Schedules Updates.

Float Suppression - Utilization of zero free float constraints which allows an activity to start as late as possible by using all its' available free float. This technique allows activities to appear more critical than if the activity's total float was based on early dates. Assigning zero free float prevents

true sharing of total float between Department and the Design-Builder. Utilization of overly generous activity durations and overly restrictive calendar non-working periods are also considered to cause float suppression.

Float, Free - The amount an activity can slip without delaying the immediate successor activities. Free Float is the property of an activity and not the network path.

Float, Total - The amount of time an activity (or chain of activities) can be delayed from its early start without delaying the Project Completion Date. Total Float is calculated and reported for each activity in a network, however, Total Float is an attribute of a network path and not associated with any one specific activity along that path.

Fragnet – A subdivision of a project network diagram usually representing some portion of the Project.

Global data – Data classified by Oracle Primavera software as Global, including Project Codes, Global Activity Codes, Global Calendars, Resource Calendars, Global Filters, Resources, Global Reports, User Defined Fields and Unit of Measure.

Initial Baseline Progress Schedule - The Progress Schedule submitted by the Proposer that shows the plan to complete the Contract Work. The Initial Baseline Progress Schedule represents the Design-Builder's plan at the time of Proposal Due Date for completing the Project.

Key Plans - Key Plans are graphic representations made by the Design-Builder's Project Scheduler on paper copies of the appropriate Contract plan sheets that reflect the Design-Builder's planned breakdown of the Project for scheduling purposes to efficiently communicate the Design-Builder's activity coding scheme to State scheduling staff. The key plans prepared by the Design-Builder shall clearly define the boundaries of the work for each designated Area, the operations contained in various Stages of work, and work in the Work Zone Traffic Control (WZTC) Phases. The alphanumeric codes on the key plans shall match the code values for the activity code "Area", "Stage", and "WZTC Phase" in the Progress Schedule.

Late Dates –The latest an activity can start or finish without delaying the day of completion.

Longest Path - The sequence of activities through the Progress Schedule network that establishes the Scheduled Completion Date

Look-Ahead Schedule – A three-week time segment generated from the accepted Progress Schedule that shows the actual work progressed during the previous one week and forecasts the work planned for next two week period following the Data Date.

Milestone – An activity with zero duration that typically represents a significant event, usually the beginning and end of the Project, milestones set forth in the Contract, construction stages, a major work package, or the Contract interim time-related clauses.

Narrative Report - A descriptive report submitted with each Progress Schedule.

Open End - The condition that exists when an activity has either no predecessor or no successor, or when an activity's only predecessor relationship is a finish-to-finish relationship or only successor relationship is a start-to-start relationship.

Predecessor - An activity that is defined by Schedule logic to precede another activity. A predecessor may control the Start Date or Finish Date of its successor.

Progress Schedule – A general Primavera P6 Schedule as defined by this Special Provision.

Progress Schedule Delay - An event, action, or other factor that delays the critical path of the Progress Schedule and extends the time needed for completion of the construction project.

Progress Schedule Revision – Revisions to the Progress Schedule ensure it accurately reflects the current means and methods of how the Project is anticipated to progress, including modifications made to any of the following items: (a) changes in logic connections between activities; (b) changes in constraints; (c) changes to activity descriptions; (d) activity additions or deletions; (e) changes in activity code assignments; (f) changes in activity production rates; and (g) changes in calendar assignments.

Progress Schedule Update – Changes to the Progress Schedule that reflect the status of activities that have commenced or have been completed, including the following items: (a) Actual Start date and or Actual Finish date as appropriate; (b) Remaining Duration for activities commenced and not complete; and (c) Suspend or Resume dates for activities commenced and not complete.

Project Scheduler – The person with the skills and expertise that is responsible for developing and maintaining the Progress Schedule.

Projects Planned Start Date – The date entered in the Project Details, in the Dates tab, that reflects the Design-Builder's planned start of work (based on Contract requirements, and reasonable expectation for a Notice to Proceed) at the Proposal Due Date.

Recovery Schedule – A schedule depicting the plan for recovery of significant time lost on the Project. This separate CPM schedule submission shall provide the resolution and include appropriate changes in network logic, calendar adjustments, or resource assignments.

Relationships - The interdependence among activities. Relationships link an activity to its predecessors and successors. Relationships are defined as:

Finish to Start - The successor activity can start only when the current activity finishes.

Finish to Finish – The finish of the successor activity depends on the finish of the current activity.

Start to Start – The start of the successor activity depends on the start of the current activity.

Start to Finish – The successor activity cannot finish until the current activity starts.

Scheduling/Leveling Report – The report generated by the software application when a user "Schedules" the project. It documents the settings used when scheduling the project, along with project statistics, errors/warnings, scheduling/leveling results, exceptions, etc.

Successor - An activity that is defined by Schedule logic to succeed another activity. The Start Date or Finish Date of a successor may be controlled by its predecessor.

Time Impact Analysis (TIA) – A technique to demonstrate the comparison of a time impact of a Progress Schedule revision prior to a change in the Contract work, against the current accepted Progress Schedule. Also known as a "What-If" analysis. A Time Impact Analysis is used to evaluate proposed changes to future work activities in the schedule.

Weekly Progress Schedule Status Report – Package of activity layouts generated weekly from the latest updated Progress Schedule in an electronic Adobe Acrobat PDF format that reflects an updated Data Date for that weekly period, and updated progress for that weekly period. The reports include multiple and various activity layouts as specified. The report shall be formatted to

fit ANSI Size D or B paper. The reports shall be submitted to the Department's Project Manager in advance of, and used in, the weekly progress meetings.

Work Breakdown Structure (WBS) - A deliverable-oriented grouping of project elements, which organizes and defines the total scope of the Project. Each descending level represents an increasingly detailed definition of project components or work packages.

Work Package - A deliverable at the lowest level of the work breakdown structure. A work package contains activities.

3.3 CONSTRUCTION DETAILS

3.3.1 Project Scheduler

The Design-Builder shall designate an individual, entitled the Project Scheduler, who will develop and maintain the Progress Schedule. The Project Scheduler shall be present at the Prestart Schedule Meeting, prepared to discuss, in detail, the proposed sequence of work and methods of operation, and how that information will be communicated through the Progress Schedule. The Project Scheduler shall attend all meetings or receive meeting minutes that outline schedule related issues of those meetings, which may affect the CPM schedule, including but not limited to those between the Design-Builder and their consultants, subcontractors and between the Design-Builder and the Department. The Project Scheduler shall be knowledgeable of the status of all aspects of the work throughout the length of the Contract, including but not limited to original Contract work, additional work, new work, and changed conditions of work.

3.3.2 Scheduling Software

The State will provide Primavera P6 software, or newer release, and computer system for use by the Project Manager to review the schedules submitted by the Design-Builder. The Department has installed Primavera P6 software, or newer release, on internet accessible servers for use by the Department's design and construction inspection staff. Appropriate Department personnel, Consultants, and Design-Builders will also have access to these schedules on the Department's Enterprise Project Management Database (EPMD). The Department will determine the location to store the Project Schedule files on the EPMD and will provide the Design-Builder the naming convention for all Progress Schedule submissions. The Design-Builder shall develop, update, and revise the Progress Schedules using the Department provided Oracle-Primavera P6 software application and the Design-Builder shall store all Progress Schedule files on the Department's EPMD.

The Design-Builder shall submit *NYSDOT Primavera Access and NYSDOT AD Account Request Form* to the Department's Project Manager for each proposed Primavera user to obtain the User ID's and Passwords for access to software and data on the Department's network servers. The form can be downloaded from the following web page:

https://www.nysdot.gov/divisions/engineering/design-buildprojectmanagement,

or can be provided by the Project Manager. These forms may be submitted any time following the Contract Designation. The Department will process these requests and should generally

provide the User ID's and Passwords within two weeks of receipt by the Project Manager. Upon approval and authorization by the Project Manager and the Project Management Office, required User ID's and passwords will be provided to the Design-Builder (for the Project Scheduler plus other persons approved by the project Manager) to obtain secure Internet access to the Primavera software and project schedule data. If the Contract is not awarded to this firm, the firm's access to this Project will be removed. Department provided User Id's and Passwords are assigned to specific individuals and shall not be shared with any other users.

The Department will provide the Design-Builder with a schedule template for the Design-Builder's use in developing their Progress Schedule. The Design-Builder shall further develop, update, and revise the Baseline Progress Schedule using Primavera P6 software that has been loaded on the Department's network servers and the Design-Builder shall store all Progress Schedule files on the Department's network servers.

The Department will not "Import" or accept Progress Schedule files from any other computer system.

Access rights within the Primavera database will be created and maintained by the Department. The Department will be the sole entity to modify the EPS structure, the OBS Structure, Project Codes, Global Activity Codes, Global Calendars, User Defined Fields, Security Profiles, Admin Categories, and Admin Preferences.

TABLE 1 – SCHEDULE FILENAME CONVENTION

Progress Schedules	**1st Version**	**2nd Version**	**3rd Version**
Draft Baseline Progress Schedule	D26####-1DB	D26####-2DB	D26####-3DB
Baseline Progress Schedule	D26####-1BPS	D26####-2BPS	D26####-3BPS
Final Baseline Progress Schedule	D26####-1FB	D26####-2FB	D26####-3FB
Month #**1** Progress Schedule Submission	D26####-1SU**1**	D26####-2SU**1**	D26####-3SU**1**
Month #**2** Progress Schedule Submission	D26####-1SU**2**	D26####-2SU**2**	D26####-3SU**2**
As-Built Progress Schedule (Last Progress Schedule)	D26####-1AB	D26####-2AB	D26####-3AB
1st Time Impact Analysis	D26####-1TIA1	D26####-2TIA1	D26####-3TIA1
1st Recovery Schedule	D26####-1RS1	D26####-2RS1	D26####-3RS1

Primavera software and schedule data on the Department's EPMD will generally be available for the Design-Builder's use at all times unless system maintenance (i.e., backups, upgrades, etc.) is being performed. System maintenance will generally be conducted over short time periods between the hours of 10 PM – 6AM, Monday - Friday and on weekends. The Department does perform regular backup of data contained in the EPMD and will make every effort to restore the latest historical copy of Schedule submissions in the event of any data failure of the EPMD. The Design-Builder shall export copies of Project Progress Schedules, Recovery Schedules, and TIA Schedules, after data modifications have been made as their backup of these submissions. In the event a Design-Builder's authorized user cannot access the software from 6AM to 10PM Monday through Friday, the Design-Builder shall provide written notification to the Project Manager.

Project schedules are developed from the Design-Builder's knowledge of the Project, and the means and methods represented in those schedules are based on the Design-Builder's understanding of the Contract documents, and the Design-Builder's past experience, which are unique to the Design-Builder. Schedule activity data and logic are therefore the intellectual property of the Design-Builder and will not be made available to other Design-Builders. All other schedule data, and all Enterprise data residing on the network servers, are the sole property of the Department.

3.3.3 Prestart Schedule Meeting

The Design-Builder shall contact the Department's Project Manager within ten (10) business days of Contract Notice to Proceed to schedule a Prestart Schedule Meeting. The purpose of this meeting is to discuss essential matters pertaining to the satisfactory scheduling of Project activities, and to resolve any known questions regarding interpretation of the contract requirements for this work.

The Project Scheduler shall be prepared to discuss the following:

1. The proposed hierarchal Work Breakdown Structure (WBS) for the Progress Schedules.
2. The proposed Project calendars.
3. The proposed Project activity codes, and various code values for each activity code.
4. Specifics of any contract Time-Related Clauses (Incentive/Disincentive, Liquidated Damages, Lane Rental, etc.);
5. The Design-Builder's schedule methodology to be employed, proposed work sequence and any proposed deviations from the contract plans with respect to Staging or Work Zone Traffic Control phasing.
6. Copies of the Key Plans shall be provided at the meeting.
7. The factors that the Design-Builder determines to control the completion of the Project and any milestone activity completion dates contained therein.
8. The Project Scheduler shall provide an outline for the content of the Narrative report for future Progress Schedule submissions.
9. Schedule submission protocol for Progress Schedule submissions.

The Design-Builder shall submit to the Department's Project Manager for review one week prior to the Prestart Schedule Meeting a copy of the Key Plans, a printout of the proposed Work Breakdown Structure, a printout of each of the proposed Project Calendars showing the Work days versus non-work days and hours per day, and a list of the Code Values for each Project Activity Code proposed to be used in the schedules.

The Department's Project Manager will be available to answer questions regarding scheduling, including: the availability of Department supplied electronic file(s) containing sample project schedule information, sample progress schedule narratives, Special Notes for CPM Scheduling, and required standard format for CPM Progress Schedules for contract work. The Design-Builder shall schedule meetings as necessary with the Department's Project Manager to discuss

schedule development and resolve schedule issues, until the Final Baseline Progress Schedule is accepted by the Department's Project Manager.

The Design-Builder is encouraged, but not required, to submit a Draft Baseline Progress Schedule that demonstrates a sample of how the Project Scheduler's proposed alphanumeric coding structure and the activity identification system for labeling work activities in the CPM progress schedule will conform to the detailed requirements of this Special Provision. The review and comment by the Project Manager of the sample schedule should assist the Project Scheduler in assuring the first submittal of the Baseline Progress Schedule will be in general conformance with the requirements of this Special Provision and other contract requirements, and that major rework of the Baseline Progress Schedule will not be required. This submittal may be made anytime following the Contract Award. Critical items for this review should include but are not limited to: the proposed WBS for subsequent Progress Schedules; the proposed Project Calendars; project Planned Start date; major milestone activities (i.e. - Award, Notice to Proceed, Project Completion); and between fifty to one hundred summary activities for the major work deliverables of the Contract (i.e. – Design bridge 1, design bridge 2, construct bridge 1, construct bridge 2, etc.) that have assigned Activity Ids, Activity Descriptions, Activity Durations, Predecessors, Successors, and Activity Relationships. These summary activities will be broken down into, or supplemented with, individual work activities for the baseline submission. To the extent practicable, the Draft Baseline Progress Schedule should include administrative and procurement activities to be accomplished during the Contract; planned submittal, review, and approval dates for shop drawings, working drawings, fabrication drawings, and Design-Builder supplied plans, procedures, and specifications.

Any submission of a Draft Baseline Progress Schedule should be accompanied by a written Narrative that provides details of the Calendar assignments of workdays versus non-working days, outlines the sequence of planned operations to complete the Project Work, and provides the proposed Activity Codes and Code values to be assigned to activities in future submissions of Project Progress Schedules. The Department's Project Manager will review the logic diagram, coding structure, activity identification system, and Narrative; and provide comments for required changes by the Project Scheduler for implementation in the submission of the Baseline Progress Schedule. The Department's Project Manager will provide written comments on major deficiencies within five (5) Workdays of receipt.

3.3.4 Progress Schedule

3.3.4.1 General

In addition to the attributes of the Progress Schedule provisions as set forth in §108-01, the Design-Builder shall prepare, furnish, and maintain a computer-generated Progress Schedule using the Critical Path Method (CPM) utilizing Primavera scheduling software on the Department's network servers. The CPM Progress Schedule shall be prepared based on the principles defined by the latest issue of the Construction Planning & Scheduling Manual published by the Associated General Contractors of America, except where superseded by the Contract documents such as the Regional CPM Special Notes (if applicable) and this Special Provision.

The Design-Builder and the Department shall use the Progress Schedule to manage the Work, including but not limited to the activities of the Design-Builder, subconsultants, subcontractors,

fabricators, the Department, other involved State agencies and authorities, other entities such as utilities and municipalities, and all other relevant parties.

No field work shall commence other than installation of the Engineer's Field Office, mobilization, procurement and administrative activities, installation of construction signs, installation of erosion and pollution protection, clearing and grubbing, field measurements, and survey and stakeout until the Final Baseline Progress Schedule has been accepted by the Department's Project Manager.

The Design-Builder will be the sole entity allowed to physically modify the following data within the Progress Schedule: activity IDs; activity descriptions; activity durations; relationships between activities; successors and predecessors, actual start and actual finish dates of activities; planned start and planned finish dates of activities; and activity resources (with the exception that activities assigned resources labeled to reflect Department personnel may be changed to reflect specific individuals, or job roles, within the Department).

The Department may modify certain data associated with the Progress Schedule to ensure conformance to the Department's Enterprise Project Management standard schedule format. This means that the Department may: create additional layouts, filters and reports; create and edit additional user defined custom data fields; assign Project Codes; add and assign additional project Activity Codes; add and assign additional Cost Account Codes; add and assign additional Resource Codes; enter data in Notebook tabs; modify calendar ID's (although not the calendar itself); etc.; that do not alter the established activities or schedule logic of the Design-Builder. The Department's Project Manager will communicate to the Design-Builder the types and scope of changes planned to be made to the Progress Schedules prior to the implementation of those changes. The Design-Builder shall not delete or modify any schedule data entered by the Department without prior approval by the Department's Project Manager. The schedule data added by the Department shall be incorporated into future schedule submissions of the Design-Builder.

The Design-Builder shall develop the Progress Schedule using, to the maximum extent practicable, the Global Activity Codes (DOT GLOBAL) identified in the Department's Primavera enterprise solution. Any schedule "Layouts", "Filters" and "Report" formats that the Design-Builder develops for the various Progress Schedules submissions to the Department's Project Manager shall be saved and made available to all other users of the Project Schedule with a name that includes the contract D#.

The Department may make copies of the Progress Schedules to perform 'what-if' type analysis, which may involve any type of modification to those copies of the schedules.

The purpose of the Progress Schedule, and scheduling provisions in the contract, shall be to:

- Ensure that the Design-Builder and the Department have a detailed plan and resources to complete the Project in accordance with contract time requirements;
- Provide a means of monitoring the progress of the Work;
- Aid in communication and coordination of activities among all affected parties;

- Analyze the effect of changed conditions on any milestone dates or on the Project Completion Date;
- Analyze the effect of change orders for extra work or deductions, and unanticipated delays, on the Project Completion Date;
- Establish a standard methodology for time adjustment analysis based on the principles of the Critical Path Method of scheduling, to analyze delays and resolve construction disputes concerning time;
- Determine appropriate extensions or reductions of Contract Time.

In scheduling and executing the Work, the Design-Builder shall:

a) Sequence the Work commensurate with the Design-Builder's abilities, resources and the Contract documents. The scheduling of activities is the responsibility of the Design-Builder.

b) Ensure that Progress Schedules prepared by the Project Scheduler for submission to the Department are in compliance with the Contract. The intent should be that Schedule submissions and accompanying Narratives are timely, complete, accurate, and in compliance with the Contract.

c) Communicate all Contract changes, and decisions or actions taken by the Design-Builder and all subconsultants, subcontractors, fabricators, etc, that effect the Progress Schedule to the Project Scheduler in a timely manner to allow appropriate development, maintenance, and update of the Progress Schedule.

d) Include all Work contained in the Contract and all Work directed in writing by the Project Manager. Work activities directed by the Project Manager to be added to the Contract shall be included in the next Monthly Progress Schedule submission.

e) Assure that Progress Schedule Updates reflect the actual dates that Work activities started and completed in the field.

f) Break a schedule activity into multiple activities to reflect a discontinuity in the Work if a work activity is suspended in the field and restarted at a later date, and the break between when the Work was suspended to when it was resumed is significant compared to the original activity duration.

g) Ensure the Progress Schedule contains all work constraints and Milestones defined in the Contract.

h) Schedule the Work using such procedures and staging or phasing as required by the Contract. Work designated as part of separate stages may be performed concurrently with other stages where allowed by the Contract or where approved by the Department.

Failure by the Design-Builder to include any element of work required by the Contract in the accepted Progress Schedule does not relieve the Design-Builder from its responsibility to perform such work.

Should the Design-Builder choose to show activities in the schedule that reflects their plan of Work prior to the Contract Award, the Department does not incur any liability and such Work being

performed between the Proposal Due Date and the Contract Award Date shall be considered at risk work.

Errors or omissions on Schedules shall not relieve the Design-Builder from finishing all work within the time limit specified for completion of the Contract.

If the Design-Builder fails to comply with the provisions of this Special Provision, the Department's Project Manager may suspend payment for any Contract Work.

3.3.4.2 **Baseline Progress Schedule**

a) The Design-Builder shall ensure the Schedule accurately reflects the proposed approach to accomplish the work outlined in the Contract documents and conforms to all requirements of this Special Provision. The Baseline Progress Schedule shall show all the activities for the design and construction for all Work in the Contract and shall indicate the date at which the Work begins and is complete. The Baseline Progress Schedule shall also show design activities including, but not limited to, the various stages of design, design checks, design reviews and the submission dates of checked designs. Any Interim Milestone(s) shall be shown in the Baseline Progress Schedule and may be used by the Department for the assessment of Liquidated Damages.

b) The schedule shall define a complete logical plan that can realistically be accomplished, to execute the Work defined in the Contract.

c) The Schedule shall comply with the work constraints and milestones defined in the Contract as well as all other contractual terms and conditions. The Schedule shall be consistent in all respects with the specific interim Time-Related Contract Provisions, and any order of work requirements of the Contract documents. The Schedule shall meet all interim milestone dates and shall not extend beyond the Project Completion Date. This submission shall reflect the Design-Builder's plan at the time of Contract Award, and prior to the start of any Work. No negative float is allowed in the Baseline Progress Schedule submission.

d) Detailed Schedule Requirements - As a minimum, the Design-Builder shall address the following in the Baseline Progress Schedule:

i) Defining Project details and defaults – Within the Dates tab, the "Planned Start" shall be either the Proposal Due Date or the Contract Award Date and the "Data Date" shall be the Notice to Proceed date. Within the Settings tab, define the Critical Activities as the "Longest Path". The Project Scheduler role does not have security privileges to change this data in the project Details tab, so requests for changes to this data needs to be forwarded to the CPMSchedulingSection@dot.ny.gov; include in your request the contract D number and the Project ID.

ii) Sufficient activities shall be included to assure that there is adequate planning for the entire Project. The appropriate number of activities will be largely dependent upon the nature, size, and complexity of the Project. In addition to all site construction activities, network activities shall include: activities necessary to depict the

procurement/submittal process including shop drawings and sample submittals; the fabrication and delivery of key and long-lead procurement elements; testing of materials, plants, and equipment; settlement or surcharge periods activities; sampling and testing period activities; cure periods; activities related to temporary structures or systems; activities assigned to subcontractors, fabricators, or suppliers; erection and removal of falsework and shoring; major traffic stage switches; activities assigned to the Department and other involved State agencies and authorities, including final inspection; activities to perform punch list work; and activities assigned to other entities such as utilities, municipalities, County government/agencies, and other adjacent contractors. The Schedule shall indicate intended submittal dates and depict the review and approval periods as defined in the Contract Documents for Department review.

The following activities shall be incorporated into the Progress Schedule:

Activity ID	Activity Description	Duration	Follows	Logic Tie	Responsible Party
M00001	Proposal Due Date	0 – Start Milestone	----	--	Design Builder
C00020	Selection of Best Value	See contract documents	M00001	FS	NYSDOT
C00035	Notification to Proceed (NTP)	0 – Finish Milestone	C00020	FF	NYSDOT
C00005	Pre-work Conference	1 Work Day	C00035	FS	NYSDOT
C00040	Prepare/Submit Safety & Health Plan	Minimum 1 Work Day	C00035	FS	Design Builder
C00045	Review & Accept Safety & Health Plan	10 Work Days	C00040	FS	NYSDOT
C00055	Set Up Engineer's Field Office	10 Work Days	C00035	FS	Design Builder
M00500	Design-Builder's First Day of Construction Work	0 - Start Milestone	C00055, C00045	FS	Design Builder
C00060	Prepare & Submit Baseline Progress Schedule	10 Work Days from receipt of NTP	C00035 C00005	FS SS/FF	Design Builder
C00065	Review Baseline Progress Schedule	10 Work Days	C00060	FS	NYSDOT
C00070	Accept Baseline Progress Schedule	1 Work Days	C00065	FS	NYSDOT
C00075	Mobilization	Minimum 10 Work Days	M00050	SS	Design Builder
M00100	Field Work Begins	0 - Start Milestone	C00055, C00070, C00075, M00500	SS	Design Builder
M00900	Substantial Completion	0 - Finish Milestone	See contract documents	FF	Design Builder
C09010	Other Agency Inspection	20 Work Days	M00900	FS	Others
C09020	NYSDOT Inspection	20 Work Days	M00900	FS	NYSDOT

Activity ID	Activity Description	Duration	Follows	Logic Tie	Responsible Party
C09030	Punchlist work	20 Work Days	C09010, C09020	FS	Design Builder
C09040	Demobilization	Minimum 10 Work Days	C09020 C09030	FS FF	Design Builder
M00950	Design-Builder's Last Day of Work	0 - Finish Milestone	C09040	FF	Design-Builder
M00999	Anticipated Project Completion	0 - Finish Milestone	M00950	FF	Design-Builder

Note – The Logic Ties shown shall be used as a relationship from the Predecessor to the Activity in the same row.

iii) **Work Breakdown Structure (WBS)** - A multi-level hierarchal WBS shall be incorporated. The levels (nodes) shall include, but not be limited to:

Level 1- is the project level; and shall have the project name.

Level 2- Shall have seven nodes, "REPORTING MILESTONES", "PLANNING", "DESIGN", "ROW", "PROJECT PROCUREMENT", "CONSTRUCTION", and "PROJECT MANAGEMENT"

Level 3- shall have three nodes under "CONSTRUCTION": "PRE-CONSTRUCTION"; "CONSTRUCTION OPERATIONS"; and "POST CONSTRUCTION/CLOSEOUT". In addition, shall have at least two nodes under Design: Design Unit design and review.

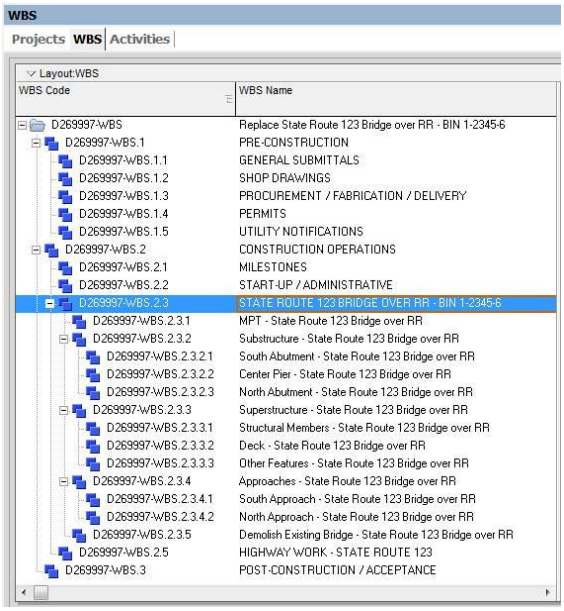
For all projects under "PRE-CONSTRUCTION" a fourth level of the WBS shall consist of at least the following four sub nodes: "GENERAL SUBMITTALS", "SHOP DRAWINGS", "PROCUREMENT/FABRICATION/DELIVERY", and "UTILITY COORDINATION".

Under the "CONSTRUCTION OPERATIONS" node, the grouping of activities may vary depending on the scope and nature of the project work. The Design-Builder shall coordinate with the NYSDOT Project Manager to determine the best way to represent (group activities) the project deliverables (i.e., Bridge, Roundabout, Highway segment, Interchange, Intersection, etc.). The NYSDOT Project Manager may require sub nodes for AREA (geographic area within the project limits), STAGE, or for a bridge project SUBSTRUCTURE, SUPERSTRUCTURE, and DECK.

Generally, Level 4 would be by geographic area within the project limits, Level 5 would be by highway feature (bridge, highway segment, intersection), Level 6 the highway features should be broken into their components; such as, a bridge into components such as Substructure, Superstructure, and Deck, or a highway segment into components such as pavement, drainage, earthwork, lighting, traffic signals, etc.

An example Work Breakdown Structure is shown below in Figure 1

FIGURE 1



iv) **Activity ID** - Include a unique identification number for each activity. Activity ID numbers shall not be changed, or reassigned. Task type Activity IDs shall be prefixed by a “C”. Milestone type activities shall be prefixed by an “M”.

v) **Activity Name** - Clearly and uniquely define each activity name with a description of the work that is readily identifiable to inspection staff and the progress of each activity can be measured. Each Activity shall have a narrative description consisting at a minimum of a verb or work function (i.e., form, pour, excavate, etc.), an object (i.e., slab, footing, wall, etc.), and a location (i.e., STA, bridge or retaining wall number, street, etc.). The work related to each Activity shall be limited to one Area of the Contract, one Stage of the Contract, one WZTC Phase of the Contract, and one Responsible Party of the Contract. The Activity Name shall not be changed for the duration of the contract without approval of the NYSDOT Project Manager.

vi) **Milestone Type Activities** - Include activities for all Contract milestones that define significant contractual events such as Contract Award, Notice to Proceed, Design-Builder Start Work, Substantial Completion Date, Project Completion Date, and coordination points with outside entities such as utilities, State agencies, Authorities, municipalities, Time-Related Contract Provisions, etc.

All milestone activities in the Schedule shall be assigned the standard Global calendar named ‘NYSDOT Milestone/Curing 365 Day / 8 hour”, this calendar should also be assigned to any activities for concrete curing.

- The Contract Award milestone shall have a primary constraint of “Finish On” and the date of Contract signature by the State Comptroller,

- The Project Completion milestone shall have a primary constraint of “Finish on or before” and the Project Completion Date.
- The Design-Builder Start Work” Start milestone activity, that will eventually reflect the actual date the Design-Builder started Work authorized under the contract.

All maintenance type work activities, such as maintaining temporary concrete barrier or rodent control, such be shown on the schedule with Start and Finish milestone type activities not task dependent activities.

vii) **Activity Durations** – Define the Original Duration of each activity in units of whole workdays, except for activities of less than one day duration which should be shown in units of tenths of a day. Except submittal/procurement activities, durations shall not exceed 15 workdays unless approved by the Department’s Project Manager. Durations for Department submittal reviews shall meet the requirements set forth in the Contract documents. If requested by the Department’s Project Manager, the Design-Builder shall justify the reasonableness of planned activity time durations. Task Dependent activities shall not have zero durations.

viii) **Production Rates** – For each non-administrative work activity in the schedule the Design-Builder shall enter the quantity of the predominate item of the work activity into the field labeled “PR Quantity”, the Unit of Measure for that item in the field labeled “PR Unit”, the anticipated production rate of the equipment and labor (crew) resources for that work activity in the field labeled “Production Rate / Day”, and the associated duration for that work activity in the field labeled “PR Duration”. These are all Activity level UDF fields and can be found in the activity Layout named Contractor Production Rates. If requested by the Department’s Project Manager, the Design-Builder shall furnish other information needed to justify the reasonableness of activity durations.

ix) **Activity Relationships** - Clearly assign predecessors and successors relationships to each activity and assign appropriate logic ties between activities (Finish to Start, Start to Start, Finish to Finish, etc.). Do not have any open-ended activities, with the exception of the first activity and last activity in the schedule. An activity may only appear once as a predecessor or successor to another specific activity but may be assigned as a predecessor or successor to many different activities. Do not include inappropriate logic ties with Milestone activities (For a finish milestone activity: a predecessor shall only be assigned a Finish-to-Finish logic tie, a successor shall only be assigned a Finish to Start or Finish to Finish logic tie. For a start milestone: a predecessor shall only be assigned a Finish to Start or Start to Start logic tie, a successor shall only be assigned with a Start-to-Start logic tie). Lag time may not exceed 10 days for Start to Start or Finish to Finish relationships. The Design-Builder shall not use negative Lag times. The Design-Builder shall not use lags with Finish to Start relationships.

x) The Design-Builder shall assign the “Contract Award Date” activity as a predecessor to all Review and Approval type activities to be performed by Department staff.

xi) **Activity Constraint Dates** – The Design-Builder shall not have any constrained activities, with the exception of contractual dates, unless the Department’s Project Manager accepts such constraints in writing. Milestone activities shall be included for the Contract Award which shall have a primary constraint of “Finish On” and the date

of Contract signature by the State Comptroller, and for the anticipated Project Completion Date which shall have a primary constraint of "Finish on or before" and the Project Completion Date indicated in the Contract documents. Only contractual/owner-designated constraints are allowed unless specifically authorized by this Special Provision or the Department's Project Manager. If used, only Constraints of type, "Finish on or Before", 'Start on or After", or when deemed appropriate by the Engineer "As-Late-As-Possible" are acceptable.

xii) **Activity Dates** – With the exception of contract Milestone dates, "Actual Start" and "Actual Finish" dates and "Planned Start" and "Planned Finish" dates, activity dates shall be calculated by the project scheduler tool within the Primavera software. No Actual Start or Actual Finish dates shall be entered in the Baseline Progress Schedule, with the exception of activities that were completed prior to the Contract Award.

xiii) **Calendars** - Use clearly defined calendars that account for expected seasonal weather conditions (including winter shutdown periods) and environmental permit requirements, for the planning and scheduling of activities. Do not incorporate an activity with a description of "Winter Shutdown" that requires constraints. Provide the workdays per week, holidays, the number of shifts per day, and the number of hours per shift by using the Calendar feature called "Time Periods" in the P6 software. Incorporate any seasonal restrictions to the work within calendars assigned to activities.

- Global calendars used in the Progress Schedule shall be those established by the Department. There are only two Global Calendars developed and maintained by the Department for use by Design-Builder's, they are the following:
  - NYSDOT Milestone/Curing 365 Day / 8 hour
  - State Business Days, 5 Day Work Week w/State Holidays, Field

Changes desired for these calendars shall be forwarded to CPMSchedulingSection@dot.state.ny.us, and if appropriate these changes will be performed by the Office of Construction system admin staff. This will be accomplished by making a copy of the existing Global calendar; the new calendar will then be renamed and modified as necessary.

- Calendars related to specific resources (i.e., a specific person or piece of equipment) shall be established as Resource Calendars, with the Calendar name clearly identifying the resource.
- All other calendars developed by a Design-Builder shall be established as Project Calendars, with the calendar name including the contract D# and describing the function (i.e., D260000 - Asphalt Calendar, D260000 - Concrete Calendar, D260000 - Landscape Calendar, D260000 - Painting Calendar, D260000 – Design-Builder's 5 Day/8 Hour Workweek). All work activities of the Design-Builder shall be assigned to Project Calendars.
- Activities for shop drawing reviews and other approvals by Department personnel shall be assigned the Department's standard Global – "State Business Days, 5 Day Work Week w/State Holidays, Field" Calendar that reflects all holidays observed by the State.

- The Baseline Progress Schedule cannot include a calendar that reflects any workers working more than 8 hours in any one calendar day or more than 5 days in any one week. (§102-7 LABOR AND EMPLOYMENT) Following the Contract award the Design-Builder can add additional calendars in their next Monthly Progress Schedule submission based on an approved overtime dispensation.

xiv) Clearly define significant interaction points between the Design-Builder, the Department, and other entities including but not limited to: Federal, State and local agencies/authorities; and utilities. All activities of the Department, utility companies, adjacent contracts, and other entities that affect progress and influence any contract required dates including durations shall be shown in the Schedule. This includes dates related to all Permits or Agreements. The Schedule shall give special consideration to sensitive areas such as road closures and parklands and shall indicate any time frames when work is restricted in these sensitive areas as outlined in the permits issued by the regulatory agencies and provided in the Contract documents.

xv) **Activity Resources** – The Design-Builder is required to enter the major equipment resources to the appropriate activities in the Schedule, these shall include pile drivers, large cranes, asphalt paving equipment, and concrete finishing machines.

It shall be the Design-Builder's responsibility to assure the activity logic in the Schedule properly reflects their resource limitations. If the Design-Builder anticipates multiple crews for the same Schedule activity, these resources shall be documented in the Schedule narrative. As an activity can have only one responsible party, no activity shall involve multiple crews comprised of the Design-Builder and a subcontractor, or multiple subcontractors.

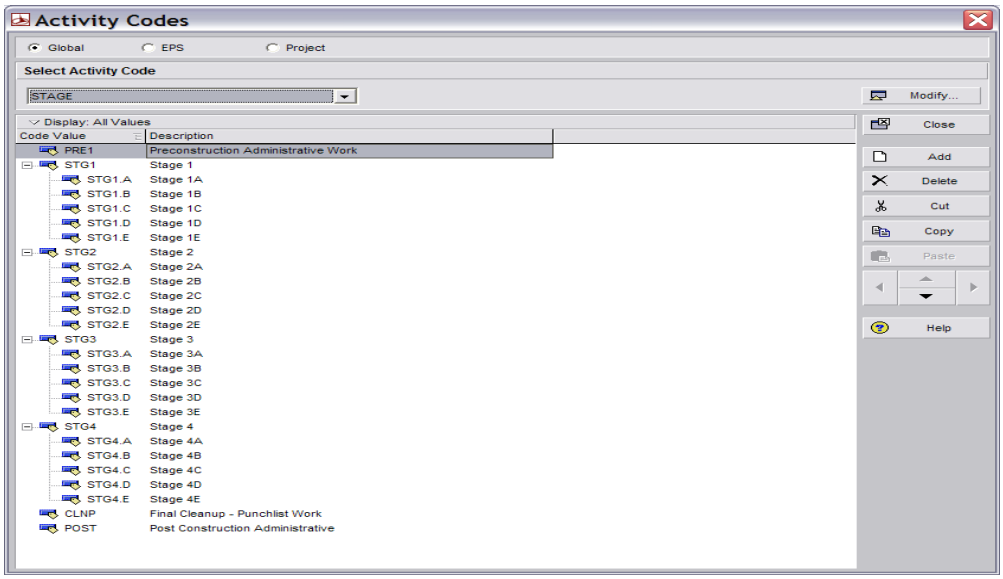
xvi) **Activity Codes** – The Design-Builder shall include a well-defined activity coding structure that allows activities to be sorted and filtered. Activity Codes shall be developed and assigned as needed by the Project Manager to facilitate the use and analysis of the Schedule.

- No Global Activity Codes shall be incorporated in any Progress Schedule submission to the Department's Project Manager except those established by the Department.
- The Design-Builder shall assign the appropriate activity code values to each activity in the Progress Schedule for the following Global Activity Codes that are in the Department's enterprise database:
    1) RESPONSIBLE PARTY (DOT GLOBAL)
    2) STAGE (DOT GLOBAL)
    3) AREA (DOT GLOBAL)
    4) TYPE OF WORK (DOT GLOBAL)
    6) CHANGED (ADDED/DELETED) WORK (DOT GLOBAL)
    7) TIME Related Clauses (DOT GLOBAL)
    8) DELAY (DOT GLOBAL)
    9) DBE (DOT GLOBAL)

- Additional Activity Codes developed for specific projects shall be established as Project Activity Codes. As a minimum this shall include the following:
  1) SUBCONTRACTOR

xvii) **Activity Code Values** – Each Activity Code shall be broken down into various Activity Code Values that are then assigned to activities. For example, the Activity Code "Stage" shall include a hierarchal arrangement of Activity Code Values as shown below in Figure 2:

FIGURE 2



xviii) **Activity Code Assignments** - For each activity, within the activity details the Design-Builder shall assign Activity Code values to identify the "Responsible Party" (i.e. – Design-Builder, NYSDOT, Utility Co, Municipality) for the work to be performed (one and only one responsible party shall be assigned to each activity), the "Stage" of the contract for the work that will be performed, the "Area" where the work is to be performed, the "WZTC Phase", and the Type of Work (i.e. - Procurement, Paving, Embankment, Excavation, Electrical, Signing, etc.). For activities included in work governed by time-related contract provisions, the appropriate "Time Related" activity code shall be utilized. For activities included in work added and/or changed within an Order-On-Contract, the appropriate "Added/Changed Work" code shall be utilized. For all work activities performed by the Design-Builder or subcontractors/fabricators/suppliers, "Contactor" shall be designated as the Responsible Party. If the Design-Builder wants a separate activity code to enable sorting the activities of subcontractors, fabricators, or suppliers a separate "Subcontractor" code shall be utilized.

xix) **Interim Milestone Completion Dates with Liquidated Damages and Special Time-Related Contract Provisions** (i.e. – Incentive/Disincentive provisions, Lane Rental) – Each time-related contract provision in the Contract shall be represented in the Progress Schedule by having a start and finish milestone, with appropriate predecessors and successors assigned to all Schedule activities considered part of that time-related contract provision work including the start and finish milestone

activities. The Start milestone for the time-related Contract work shall have predecessors and/or date constraints assigned that include those defined in the Contract documents, and the Finish milestone for the time-related Contract work shall have successors and/or date constraints assigned that include those defined in the Contract documents. All Schedule activities associated with each specific time-related contract provision shall be assigned to a separate node within the project WBS and the WBS node description shall be labeled accordingly, in addition these activities shall be assigned the appropriate Time-Related Clauses (DOT GLOBAL) activity code value. A Level of Effort activity shall be used for each time related contract provision (i.e. - "Incentive 1 Duration" or "B Clock 1 Duration"), this activity shall have the Start Milestone as a predecessor with a SS relationship and the Finish Milestone as a successor with an FF relationship and the duration of this activity shall be calculated when the project is scheduled.

xx) **Baseline Narrative** - Include a narrative in Microsoft Word and/or Adobe Acrobat format that includes the following topics and attachments:

- **Contract Identification.** Include the contract D number, project name, project location, and name of the Design-Builder.
- **Key milestone dates.** Include the actual Contract Award Date, original and adjusted Project Completion Date, Substantial Completion Date, and anticipated completion of all Project Work. Also include any contract Interim Milestone dates (I/D, B-Clock, LD, etc.), and scheduled Start and Finish dates for those Milestone activities.
- **General approach.** Describe the Design-Builder's general approach to construct the Work outlined in the baseline schedule. Address the reasons for the sequencing of work and describe any resource limitations, potential conflicts, and other salient items that may affect the schedule and how they may be resolved.
- **Key Plan**s. If not provided in the Contract plans, or if modified by the Design-Builder, provide copies of the appropriate Contract plan sheets marked up to correlate values on the Contract plans (for Area of Work, Stage of Work, and WZTC Phase) to the Design-Builder's planned breakdown of the project (i.e.- Activity Codes, Activity Descriptions) for scheduling purposes.
- **Logic Justifications.** The justification(s) for each activity with a duration exceeding 15 working days. The justification(s) for Design-Builder imposed activity constraints proposed in the schedule. The reason for any lags assigned to any activities.
- **Calendars.** Include a list of calendars which have been incorporated in the Schedule, and for each calendar the general reason for its use in the Schedule.
- **Critical Path issues.** A brief discussion of the critical path shown in Appendix 2, highlighting any potential challenges that are foreseen associated with the critical path work.
- **Coordination issues.** Outline any anticipated coordination issues related to work activities by other entities that require additional information from, or action by, the Department's Project Manager.

- **APPENDIX 1 – Scheduling/Leveling Report.** This appendix in Adobe Acrobat PDF file format, formatted to fit standard ANSI Size A (Letter) size paper (8.5-inch x 12 inch) (215 mm x 279 mm) paper, printed with portrait orientation, shall be included with the narrative as a separate file.

  A complete Scheduling/Leveling Report (SCHEDLOG.TXT file generated by the Department's Oracle-Primavera scheduling software application) which includes the Schedule Settings, Statistics, Errors, Warnings, Scheduling/Leveling Results, Exceptions, Activities with unsatisfied constraints, Activities with unsatisfied relationships, and Activities with external dates. The statistics shall include, # of Activities, # of Activities Not Started, # of Activities in Progress, # of Activities Completed, # of Activity Relationships, and # of Activities with Constraints. Total number of activities on the critical path, percent complete, activities without predecessors, activities without successors, and activities out of sequence.

- **APPENDIX 2 – Progress Schedule plot.** This appendix in Adobe Acrobat PDF file format, formatted to fit ANSI Size B (Ledger) paper (11-inch x 17 inch) (279 mm x 431 mm) paper, printed with Landscape orientation, shall be included with the narrative as a separate file.

  Appendix 2 to the narrative shall be an electronic schedule plot (Adobe Acrobat format) using the Global Layout named "Baseline Schedule submission", with activities sorted by Start Date in ascending order, grouping of activities by WBS, and only the "Longest Path" filter applied. This plot shall provide a clear critical path from the Data Date to the last activity in the schedule. Graphical representations shall be shown at a suitable scale to be legible and readable.

xxi) **List of Submittals –** The Design-Builder shall submit with the Progress Schedule a list of all Submittals (i.e. – design plans, project specification, shop drawings, required permits, erection/demolition plans, Health and Safety Plan, Reference Part 3, Section 2.3, etc.) generated from the Baseline Progress Schedule for review and acceptance by the Department's Project Manager. The Design-Builder shall use a Filter to limit the schedule activities shown in the report to only the prepare/submit, and review/approve activities related to submittals. The report shall be in Adobe PDF format and transmitted to the Project Manager by email. This list shall be revised and updated monthly with each schedule submission.

e) Schedule Submission

i) Within the timeframe indicated in Table 2 column 1, submit one electronic copy of the Baseline Progress Schedule in a Critical Path Method (CPM) format for the Department Project Manager's review and acceptance.

TABLE 2 (IN WORK DAYS)		
Timeframe from receipt of Notice to Proceed to Submission of complete Baseline Schedule. (Column 1)	Timeframe for Department Project Manager's Review (Column 2)	Timeframe from Notice to Proceed to acceptance by the Department's Project Manager not to exceed (Column 3)

10	10	40

ii) The Department's Project Manager will review the schedule and return it, accept it with comments, or reject it within the timeframes indicated in Table 2 column 2, following the date of receipt of the Design-Builder's submission.

iii) If the schedule is returned with comments, the Design-Builder shall address all comments and revise the schedule as necessary. The Design-Builder shall complete the Final Baseline Progress Schedule and obtain the acceptance of the Department's Project Manager within the timeframe required in Table 2 column 3.

iv) If the schedule is accepted by the Department's Project Manager without any comments, the Design-Builder shall copy the schedule and rename it for submission as the Final Baseline Progress Schedule.

v) In no way does the Baseline Progress Schedule modify the Contract documents.

vi) The Design-Builder shall assign appropriate Activity Codes and provide custom Layouts, Filters, and/or report formats necessary to allow the Project Manager to generate a report from each Progress Schedule submission of all submittals required under the Contract (i.e., shop drawings, required permits, erection/demolition plans, etc.). The list shall show scheduled submission date, review date, and acceptance date for each submittal and identify the earliest activity affected by each of these submittals. This list shall be generated from each Progress Schedule submission until all such activities are completed.

3.3.4.3 **Final Baseline Progress Schedule**

a) If the Baseline Progress Schedule is returned to the Design-Builder with comments, the Design-Builder shall make a copy of the schedule and rename it as the Final Baseline Progress Schedule with comments addressed and revisions made as necessary. The Design-Builder shall complete the Final Baseline Progress Schedule and obtain acceptance of the Department's Project Manager within the timeframe required in column 3 of Table 2, or within one week of the Design-Builder's receipt of the final comments by the Department's Project Manager, whichever is sooner.

b) The Department's Project Manager will review the schedule and return it, accepted or with comments, within 5 Work days following the date of receipt of the Design-Builder's submission.

c) The Final Baseline Progress Schedule must be "accepted" or "accepted as noted" by the Department's Project Manager prior to the Department evaluating any Design-Builder disputes associated with time impacts. This does not preclude the Design-Builder from submitting a dispute while the schedule is being reviewed for acceptance.

3.3.4.4 **Monthly Progress Schedule Submissions.**

a) First Monthly Progress Schedule Submission – Within three Work Days following acceptance of the Final Baseline Progress Schedule , the Design-Builder shall perform a Progress Schedule Update to reflect the status of all activities where work was performed in the time period between the start of work and acceptance of the Final Baseline Progress Schedule. This shall include actual dates entered in the Actual Start and Actual Finish columns, and Remaining Duration for activities where work has commenced but

has not been completed, in addition the Design-Builder shall incorporate any Progress Schedule Revisions that reflect any changes in how future work activities are to be completed.

b) Subsequent Monthly Progress Schedule Submissions - On a monthly basis, the Design-Builder shall submit a copy of the current Progress Schedule that includes all Progress Schedule Revisions and Progress Schedule Updates to reflect the actual and planned prosecution and progress of the contract work. Progress Schedule Updates shall reflect the status of activities that have commenced or have been completed, including the following items: (a) actual dates in activity Actual Start and Actual Finish columns as appropriate; (b) actual Remaining Duration for activities commenced and not complete; and (c) actual activity Suspend or Resume dates for activities commenced and not complete. Progress Schedule Revisions reflect modifications made to activities in the current project baseline schedule in any of the following items: (a) activity Original Duration; (b) changes in logic connections between activities; (c) changes in Constraints; (d) changes to Activity Descriptions; (e) activity additions or deletions; (f) changes in Activity Code assignments; (g) changes in Calendar assignments, (h) Productivity Rates. All "Out of Sequence" activities noted in the scheduling log shall be corrected to reflect the current construction operations.

   When preparing a formal submission of the Progress Schedule, the Design-Builder shall make a copy of the current Progress Schedule and name it according to the file naming convention provided by the Department in Table 1.

c) Additional Schedule Requirements - In addition to the schedule requirements detailed for the submission of the Baseline Progress Schedule, the following shall be provided by the Design-Builder:

   i) Data Date - the “Data Date” shall be the date the Project Scheduler last edits the schedule prior to submission to the Department’s Project Manager. The Project Scheduler shall enter the Data Date through the Schedule (F9) tool.

   ii) Activity Status Tab -

      a. Durations – the Original Duration shall not be changed without prior written justification by the Design-Builder, and written approval by the Department’s Project Manager. The Design-Builder shall edit the Remaining Duration to reflect progress made on work activities and shall not use Duration %. If a proposed change to Original Duration is due to additional or changed work to the contract the Design-Builder shall instead add an activity to reflect this additional work and assign the appropriate Activity Code. The Design-Builder shall not use zero durations for Task Dependent activities.

      b. Started and Finished dates – for each activity where work was begun during the month, the Design-Builder shall check the box adjacent to Started and enter the date the work began. For each activity where work was completed during the month, the Design-Builder shall check the box adjacent to Finished and enter the date the work was completed.

      c. Suspended work – The first time that work has been suspended on a schedule activity, the Design-Builder shall enter the Suspend and Resume fields within the Project Details under the Status tab. For any subsequent suspensions of

work to that activity the Design-Builder shall break that activity into two or more activities to accurately reflect the suspension and resumption of work dates in the field, and to more accurately reflect the relationship to other work activities.

iii) Calendars – To change a Project calendar for activities scheduled in the future, the Design-Builder shall copy the calendar and use a revised name that includes a reference to which Monthly Update the change was incorporated (i.e. - D260000 - Concrete Calendar should be revised to D260000 – 2 - Concrete Calendar to reflect the 2nd Monthly Update when the change was made to the calendar). The reason for the change in the calendar shall be documented in the Narrative.

iv) Notebook Tab –

a. Delays - For any activities on the critical path that are delayed during this monthly reporting period, the Design-Builder shall enter the dates the activity was delayed and the reason for such delay in the Notebook tab of that activity.

b. Activity Changes – For any changes to activity logic, calendar assignments, suspended work, added or revised lag periods or constraints the Design-Builder shall document the change and reason in a Notebook Topic for that activity by assigning the appropriate “Progress Submission # Revision” and describing the changes.

v) Production Rates – For any activities where the work to be performed is similar in nature to work already performed on the same Project and that the Production Rate for the work to be performed is different than the actual Production Rate for work already performed, the Department’s Project Manager may require the Design-Builder to adjust the Duration for the work to be performed to reflect the more appropriate Production Rate.

vi) Deleted work – If work has been deleted the corresponding work activities in the schedule shall be deleted. The Design-Builder shall not just zero the activity duration since the calendar assigned to the zero-duration activity shall still affect the logic of future work activities.

d) Monthly Progress Schedule Narrative - For each Monthly Progress Schedule submission, the Design-Builder shall submit a narrative in Microsoft Word, or Adobe Acrobat format that includes, but is not limited to the topics from the Baseline Narrative and the additional topics below:

i) **Project Progress.** Discuss the progress that was made during the current reporting period, and document any Total Float gained or recovered during the period. For major work items describe the differences between the actual work performed and the work planned for the period as represented in the preceding Progress Schedule submission, including explanations for the deviations.

ii) **Suspended Work.** For all suspended work activities that could otherwise logically be progressed, identify the responsible party prohibiting the progression of the work, as well as the detailed reasons why.

iii) **Project Delays.** Discuss any delays experienced during the current reporting period. Quantify any relative change in Total Float for the project since the last Progress Schedule submission. For each activity on the critical path (include Activity ID’s and

Activity Descriptions) where work was delayed during the reporting period, provide the following detailed information including:

- the extent in days (negative float) of the delay, and events that caused the delay.
- the party(s) responsible for the delay event(s).
- the other activities in the construction schedule affected by the events.
- the reasonable steps needed to minimize the impact of the delay, and which party needs to take the action(s).

The Design-Builder is reminded of the requirements of Notice & Recordkeeping as found in DB Section 104-06 as it relates to Disputed Work. The Design-Builder shall include a copy of any notice provided to the Project Manager for any time-related delay dispute as part of their narrative.

iv) **Project Issues.** List any other problems experienced during this Progress Schedule submission period, the party responsible for the problems, and the Design-Builder's intentions to resolve the issue(s).List all activities for procurement of long lead time materials that are behind schedule and the reason(s) why.

v) **Schedule changes.**

- List of all added or deleted activities included in this Progress Schedule submission, and the reason(s) for and the impact(s) of such changes.
- List all changes in activity Original Durations, the justification for such change(s), and the impact(s) of such changes.
- List all changes in relationships between activities included in this Progress Schedule submission, and the reason(s) for and the impact(s) of such changes.
- List any addition or deletion of activity or project constraints, and the reason(s) for and the impact(s) of such changes.
- List all changes to the project calendars, and the reason(s) for and the impact(s) of such changes.

vi) List all activities for procurement of long lead time materials that are behind schedule and the reason(s) why.

vii) For major work items describe the differences between the actual work performed and the work planned for the period as represented in the preceding Progress Schedule submission, including explanations for the deviations.

viii) Description of any changes to the critical path since the last Monthly Progress Schedule submission and the impacts of such changes.

ix) The major work elements, as defined in the WBS, to be accomplished during the next monthly work period.

x) Any potential problems that are anticipated for the next monthly work period and the proposed solutions to such problems. Identify potential problems or risks that either the Department or Design-Builder may be potentially responsible for. Explain what

action the responsible party (i.e. - Department or Design-Builder) needs to take and the date by which time the action needs to be taken to avoid the problem.

xi) Any planned acceleration of activities that the Design-Builder anticipates undertaking within the next monthly work period that either the Department directed, or that the Design-Builder believes is necessary.

xii) The following appendix in Adobe Acrobat PDF file format, formatted to fit ANSI Size E paper (34-inch x 44 inch) (863 mm x 1117 mm) paper, printed with Landscape orientation, shall be included with the narrative as a separate file.

- APPENDIX 1 – A listing of all work activities as of the Data Date, using the NYSDOT Appendix 1 activity layout, sorted by Finish date, Total Float in increasing order, showing the Activity ID, Activity Name, Original Duration, Remaining Duration, Actual Duration, Total Float, Early Start date, Start date, Finish date, Late Finish date, and Calendar ID. The grouping of activities shall be by WBS. The Gantt Chart shall clearly indicate all activities in the schedule. Graphical representations shall be shown at a suitable scale to be legible and readable.

xiii) The following appendix in Adobe Acrobat PDF file format, formatted to fit ANSI Size B (Ledger) paper (11-inch x 17 inch) (279 mm x 431 mm) paper, printed with Landscape orientation, shall be included with the narrative as separate files.

- APPENDIX 2 – A listing of all work activities as of the Data Date, using the NYSDOT Appendix 1 activity layout, sorted by Finish date, Total Float in increasing order, showing the Activity ID, Activity Name, Original Duration, Total Float, Start date, Finish date. There shall be no Grouping of activities, and the global Filter for Longest Path shall be applied. The Gantt Chart shall clearly indicate the project critical (longest) path, with logic lines. Graphical representations shall be shown at a suitable scale to be legible and readable.

xiv) The following appendix in Adobe Acrobat PDF file format, formatted to fit standard ANSI A (Letter) size paper (8.5-inch x 12 inch) (215 mm x 279 mm) paper, printed with portrait orientation, shall be included with the narrative as a separate file.

- APPENDIX 3 – A complete Scheduling/Leveling Report file generated by the Department's Primavera scheduling software application which includes the Schedule Settings, Statistics, Errors, Warnings, Scheduling/Leveling Results, Exceptions, Activities with unsatisfied constraints, Activities with unsatisfied relationships, and Activities with external dates. The statistics shall include, # of Activities, # of Activities Not Started, # of Activities in Progress, # of Activities Completed, # of Activity Relationships, and # of Activities with Constraints. Total number of activities on the critical path, percent complete, activities without predecessors, activities without successors, and activities out of sequence.

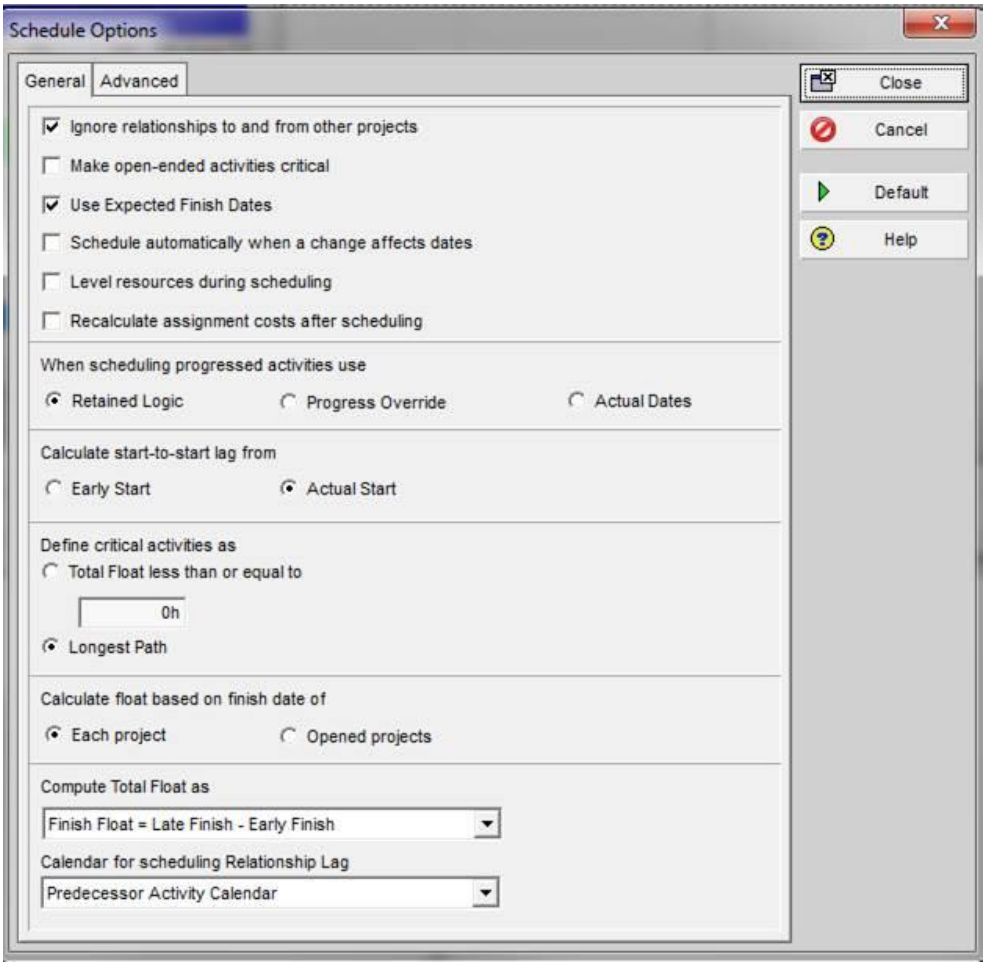
e) For any contract time extension requests the Design-Builder shall include: a Time Impact Analysis (TIA) for any changes to the schedule for future work for such issues as Added Work, VECP, or Changed Conditions; and a Delay Analysis that documents all delays from the Contract Award to the current date that is based on critical path delays that

occurred when comparing subsequent Monthly Progress Schedule submissions and the supporting delay documentation in the Monthly Schedule Narratives.

f) Monthly Progress Schedule Submission - The Design-Builder shall submit the Monthly Progress Schedule to the Department's Project Manager with a regularly recurring data date, as specified by the Department's Project Manager. The schedule submission to the Department's Project Manager shall be made within three (3) Work Days of the Data Date, whether or not the Department's Project Manager has accepted the previous Monthly Progress Schedule submission. Schedule submittals will only be considered complete when all documents and data have been provided.

Prior to submitting the schedule the Project Scheduler shall "Schedule" the project, when scheduling the project, the Scheduling Options shown in Figure 3 shall be used unless approval to vary from these settings is given by the Department's Project Manager. The Project Scheduler shall use the same Scheduling Options for all Progress Schedule submittals for the duration of the contract, unless directed otherwise by the Department's Project Manager.

FIGURE 3



g) Schedule Submission Method - The Design-Builder shall submit the schedule to the Department's Project Manager electronically for review and acceptance. The filename shall conform to the requirements of Table 1. The Project Scheduler can change the Project ID and Name through the WBS at the top node, as they do not have privileges to edit data through the Project Details tab. The Design-Builder's submission shall be documented by an E-mail to the Department's Project Manager, with a copy to CPMSchedulingSection@dot.ny.gov and all appropriate project participants, that the project schedule on the network is ready for review. The Design-Builder's E-mail to the Department's Project Manager shall also consist of the following:

i) The subject of the E-mail shall include the Region #, contract D number, the Project Name, the Progress Schedule's ProjectID, and Design-Builder company name. (i.e. – Region 8, D260000, Rehabilitation of Main Street viaduct, D260000-1UD2, ABC Contractors)

ii) The E-mail message shall include the name of the Department's Project Manager, the current anticipated Finish date of the last activity in the Project Schedule, a statement as to how that date compares to the current Project Completion Date.

iii) Electronic files of all Narrative Reports and required attachments and appendices associated with the schedule shall be submitted by the Design-Builder in Adobe Acrobat format.

3.3.4.5 **Weekly Progress Schedule Status Report:**

1) The Design-Builder shall provide the Weekly Progress Schedule Status Report on a consistent and recurring basis of once per week. The Project Scheduler shall advance the data date to the current week, update the actual progress completed to date, forecast the remaining duration for all activities still in progress, and schedule the project. The Design-Builder shall generate and submit to the Department's Project Manager include the following activity layouts:
   i. Weekly Status Report using the global activity layout named Weekly Status Report;
   ii. Critical Path to Project Completion as directed by the Department's Project Manager;
   iii. Near Critical Paths as directed by the Department's Project Manager;
   iv. Multiple float paths and Longest Paths to project milestones and project features as directed by the Department's Project Manager;
   v. Three-month look-ahead as directed by the Department's Project Manager;
   vi. Other activity layouts as directed by the Department's Project Manager.
2) The Weekly Progress Schedule Status Reports shall commence within 3 weeks of Notice to Proceed. Weekly Progress Schedule Status Reports shall be provided the day before progress meetings. In the absence of the accepted Final Baseline Progress Schedule, the Weekly Progress Schedule Status Reports shall be submitted at the request of the Department's Project Manager.
3) The Design-Builder shall submit the Weekly Progress Schedule Status Reports to the Project Manager within two (2) Work Days of the Data Date for that weekly update period. The Gantt Chart shall clearly indicate the project critical (longest) path. Graphical representations shall be shown at a suitable scale to be legible and readable.
4) During any time periods within the contract that special time-related contract provisions are in effect, including Incentive/Disincentive Periods, the Project Manager may require more frequent Progress Schedule Updates and/or Progress Schedule Status Reports.

3.3.4.6 **As-Built Progress Schedule**

The Design-Builder shall submit the As-Built Progress Schedule with Actual Start and Actual Finish dates for all activities, within ten (10) Work Days following final acceptance of work by the Department.

3.3.5 Progress Schedule Review and Analysis

3.3.5.1 Immediate Rejection of Progress Schedule Submissions.

The following deficiencies in a Design-Builder's Progress Schedule submission shall be grounds for the immediate rejection by the Department's Project Manager, without further review, analysis and/or comments.

a) Failure of the Project Scheduler to "schedule" the Project, as of the Data Date.

b) Failure to attach a copy of the complete Scheduling/Leveling Report (SCHEDLOG.TXT file generated by Primavera software application).

c) Any activities without predecessors, or activities without successors, appearing in the Scheduling/Leveling Report with the exception of the first and last activity in the schedule.

d) Any activity constraints appearing in the Scheduling/Leveling Report that have not been approved in writing by the EIC, or that are not specifically allowed by this Special Provision.

e) Any Activities with Actual Dates > Data Date appearing in the Scheduling/Leveling Report.

f) Any Milestone Activities with invalid relationships appearing in the Scheduling/Leveling Report.

g) Failure to have a clearly defined Critical Path from the Data Date to the last activity in the schedule, using the Longest Path method. This would reflect logic errors in the project schedule.

h) Failure to attach the schedule Narrative and required appendices.

i) Failure to correct any "Out-Of-Sequence" activities that affect the critical path.

If any of these deficiencies are found, the Design-Builder's submission shall be considered deficient, and the Department's Project Manager will notify the Design-Builder immediately by return E-mail of the rejection of the schedule submittal.

3.3.5.2 Schedule Analysis Method.

Events, actions, and progress that cause delays or gains to the Progress Schedule will be analyzed solely by the "Contemporaneous Period Analysis" method.

3.3.5.3 Project Progress Meetings

One topic of the regular weekly progress meetings held by the Project Manager and attended by the Design-Builder shall be a review of the Weekly Progress Schedule Status Reports. The Design-Builder shall be represented by their design, construction and Project Scheduler personnel. The Design-Builder shall review and discuss the current Weekly Progress Schedule Status Reports at the progress meetings.

a) The review of the Status Report serves as the forum to discuss project progress and delays, suggested remedies, necessary Progress Schedule revisions, coordination requirements, change orders, potential Design-Builder time extension requests, and other

relevant issues. If contract work is falling behind the Progress Schedule, the responsible party (i.e.- Design-Builder or Department) shall be ready to discuss what measures it will take in the next thirty (30) days to put the work back on schedule so as to meet the Project Completion Date specified in the Contract.

b) Items of discussion will include but are not limited to project progress; schedule progress; near term and long-term schedule issues, including RFIs, Shop Drawing submittals, permit work, utility relocations, mitigation work; project issues and risks; proposed solutions; and any relevant technical issues that are schedule related.

c) At the meeting the Project Scheduler shall compile an action item list that describes who is responsible for existing or pending issues and the date by which the issue needs to be resolved to avoid delays. The Design-Builder shall forward a copy of the action item list to the Project Manager within 2 business days following the meeting.

3.3.5.4 **Department Review and Acceptance of Progress Schedules**

The Department's Project Manager will review the Monthly Progress Schedule submissions and will prepare a written response (Progress Schedule Review Report) to the Design-Builder's submission within five (5) Work Days following receipt of the Design-Builder's complete schedule submission. The Department's Project Manager will either "accept" the schedule, "accept as noted", or "reject" the schedule for re-submittal by the Design-Builder.

If the Progress Schedule submission is not in compliance with contract requirements, the Department's Project Manager may reject the submittal and shall forward any comments and requests for schedule revisions to the Design-Builder. The Design-Builder shall address all comments in writing and/or make the requested revisions and resubmit the revised schedule within three (3) Work days of the Department Project Manager's reply. If the Department's Project Manager determines the revised submission still does not meet the contract requirements, any further revisions required thereafter shall also be submitted for acceptance within (3) Work days of the request for revisions by the Department's Project Manager.

For schedules that are "accepted as noted" the Department's Project Manager shall forward any comments, or requests for revisions, to the Design-Builder. The Design-Builder shall address all comments in writing and/or make the requested revisions as part of the next scheduled Progress Schedule submission.

The Design-Builder shall make adjustments to the Progress Schedule in accordance with the comments from the Department's Project Manager and resubmit copies for review consistent with the requirements of this section.

The Department's Project Manager, by accepting the Progress Schedule, does not agree that the Progress Schedule is reasonable or that by following the Progress Schedule the Design-Builder can complete the Work in a timely manner. If, after a Progress Schedule has been accepted by the Department's Project Manager, either the Design-Builder or the Department's Project Manager discover that any aspect of the Schedule is in error, or something significant has been omitted, the Design-Builder shall correct the Progress Schedule in the next Progress Schedule submission and describe this revision in the Narrative report.

Acceptance of Progress Schedules by the Department's Project Manager shall not be construed to imply approval of any particular construction methods or sequence of construction or to relieve the Design-Builder from its responsibility to provide sufficient materials, equipment and labor to guarantee the completion of the Contract in accordance with the Contract requirement.

Acceptance of the Progress Schedule by the Project Manager does not attest to the validity of assumptions, activities, relationships, sequences, resource allocations, or any other aspect of the progress schedule. Within the contractual constraints, the Design-Builder is solely responsible for the planning and execution of the work.

Acceptance of the Progress Schedule by the Department's Project Manager shall not be construed to modify or amend the Contract Agreement or the date of Project Completion therein. Completion dates can only be modified or amended by standard contractual means, through an official HC-250b Request for Extension of Completion Date.

If any resources are included in the Progress Schedule, it is not intended that the Department's Project Manager, by accepting the schedule should use the Design-Builder's resource data for anything other than determining the reasonableness of achieving the Design-Builder's production rates.

Once the Progress Schedule has been accepted, the Design-Builder shall not deviate from it without first notifying the Department's Project Manager in writing.

Upon receipt from the Design-Builder of the corrected schedule, a new review period by the Department's Project Manager of five (5) Work days will begin.

3.3.6 Changes to Progress Schedule due to Added/Deleted/Changed Work:

3.3.6.1 Changes to the Contract

The Design-Builder shall comply with the Notice and Recordkeeping provisions of §104-06, Notices and Recordkeeping, and notify the Department's Project Manager in writing if there is any effect of such change to the schedule. In the event there is a notice of a change to the Contract, the appropriate changes to the progress schedule shall be made, as necessary, to incorporate the anticipated added/deleted/changed work. The reasons for these revisions must be succinct, comprehensive, and factual to merit consideration. Change to the contract includes, but is not limited to, Extra Work, Agreed Prices, Change Orders, Suspensions of Work Directed by the Department's Project Manager, Changed Condition, and Value Engineering Change Proposals. Added, deleted and/or extra work associated with Change Orders shall be reflected in the next Monthly Progress Schedule Submission in anticipation of and prior to the date in which the work physically takes place without regard to the dates when the actual Change Order was approved. The effect of the change to the Contract on the projects Critical Path shall be stated. Extra work or additional work that does not affect the controlling operation on the critical path will not be considered as the basis for a time extension. All schedule activities effected by added, deleted or changed work that is included in a signed Change Order, Field Change Order, or Authorization of Extra Work (with the exception of minor quantity changes that do not impact contract milestones), or work activities performed by the Design-Builder at risk in anticipation of such Department approval, shall be assigned the appropriate Activity Code (Added/Changed Work)

and Code Value (sequentially numbered) to denote which “Changed Contract Work” order number correlates to those activities of work.

3.3.6.2 **Time Impact Analysis**

For each request of an adjustment of Contract time due to an anticipated change to future work in the Progress Schedule, when the Design-Builder or Department’s Project Manager consider that an anticipated or approved change to the Contract may impact the critical path and Contract progress by more than a calendar month, the Design-Builder shall submit a Time Impact Analysis (TIA). The TIA shall be submitted as part of any Order on Contract (Change Order) and/or VECP if the critical path changes by more than a calendar month.

The TIA shall be based on a revised Progress Schedule and shall be submitted as an electronic file (using Microsoft Word for the narrative) containing:

a) The TIA shall illustrate the impacts of each change or delay on the current scheduled completion date or internal milestone, as appropriate.

b) The analysis shall use the accepted Monthly Progress Schedule that has a data date closest to and prior to the event as the “Current Baseline”, this shall then be compared against the “What-if Project Plan Baseline” for the purpose of the TIA.

c) If the Department’s Project Manager determines that the accepted schedule used does not appropriately represent the conditions prior to the event, the accepted schedule shall be updated to the day before the event being analyzed.

d) The TIA shall include an impacted schedule (“What-if Project Plan Baseline”) developed from incorporating the actual or anticipated event into the accepted schedule by adding or deleting activities, or by changing durations or logic of existing activities.

e) If the impact schedule shows that incorporating the event negatively modifies the critical path and scheduled completion date of the accepted schedule, and the Project Manager accepts the impacted schedule, the difference between scheduled completion dates of the two schedules shall be equal to the proposed adjustment of contract time.

f) The Department’s Project Manager may construct and utilize an appropriate project schedule or use another recognized method to determine adjustments in contract time until the Design-Builder provides the TIA.

g) The Design-Builder shall submit a TIA within fifteen (15) Work Days of receiving a written request for a TIA from the Department’s Project Manager.

h) The Design-Builder shall allow the Project Manager ten (10) Work Days after receipt to accept or reject the submitted TIA. All accepted TIA schedule changes shall be included in the next Monthly Progress Schedule submission.

i) If a TIA submitted by the Design-Builder is rejected by the Department’s Project Manager, the Design-Builder shall meet with the Project Manager to discuss and resolve issues related to the TIA. If agreement is not reached, the Design-Builder shall give notice in conformance with §104-06, Notices and Recordkeeping, and submit in

accordance with the provisions in §105-14, Required Content of Dispute Submission.

j) The Design-Builder shall only show actual as-built work, not unapproved changes related to the TIA, in subsequent Monthly Progress Schedule submissions. If agreement is reached at a later date, approved TIA schedule changes shall be included in the next Monthly Progress Schedule submission.

k) Request for a contract time extension will not be processed until the receipt and approval of a Time Impact Analysis.

3.3.7 Failure to Submit Progress Schedules and/or Recovery Schedules

If the Design-Builder fails to comply with the provisions of this Special Provision or continues to submit deficient schedules, the Department's Project Manager may suspend payment for all Contract Work.

1) If the Design-Builder's Progress Schedule submission is rejected due to any deficiency noted in paragraph 5.3.5.1(a) through (i), it shall be considered an incomplete submission and therefore substantially deficient.

2) If the Design-Builder's revised Progress Schedule submission does not address the written comments provided by the Department's Project Manager and does not include a written explanation with a reasonable rationale for not addressing those comments, the submission shall be considered deficient.

3.3.8 Recovery Schedule

1) If the latest completion time for any work on the current Progress Schedule results in an activity being delayed ten percent or more of the time beyond the required Contract duration or any specified Milestone duration, as adjusted if appropriate, the Project Manager may require the Design-Builder to submit a Recovery Schedule and written description of the plan to recover all lost time and maintain the required Completion Date or specified Interim Milestone Date(s).

2) With the Recovery Schedule the Design-Builder shall include revised calendars, activity Production Rates, and/or revised activity logic along with a narrative that identifies how time will be recovered.

   The submission may be supplemented with a request for a Contract Time Extension. The Design-Builder shall provide a reasonable plan for accomplishing the work of the contract within the current completion date, or to the requested contract extension date. The Department's Project Manager will use the Recovery Schedule to evaluate time extensions, with or without charges.

3.3.9 Float

During the course of contract execution, Total Float generated due to the efficiencies of either party (State or Design-Builder) will be considered project Float that is not for the sole use of the party generating the float; rather it is a shared commodity to be reasonably used by either party. Any party assigned activity responsibility within the schedule has the full use of the project Float until it is depleted.

3.4 PAYMENT

The cost of preparing and updating the CPM schedule and meeting all other requirements of this Special Provision shall be included the Project costs.

SP-4. MATERIALS APPROVAL PROCEDURES FOR DESIGN-BUILD PROJECTS

All Materials used in the Design-Build work shall meet the quality requirements described in the Contract Documents. The use of Standard Specifications and Approved List (AL) materials are expected for commonly available products for incorporation into the Work. Additionally, existing NYSDOT Special Specifications that include material requirements may also be used in the Work.

If the Design-Builder deviates from Contract Documents, Standard Specifications, or existing Special Specifications, the Design-Builder shall develop Design Plans, Project Specifications and Work Plans that define materials and procedures to complete the Work. The Design-Builder shall progress acceptance of materials and sources, proving durability through tests and evaluations as appropriate, prior to use in the Work. The Design-Builder shall document the sources of supply (NOTE: Must be in compliance with all “Buy America” regulations) and kinds of materials that will be used in the work as soon as they are known.

As part of the Design requirements of Part 3, Section 5, the Department will review and accept materials proposed for use as follows:

Products that are not presently on the AL but claim to meet specification requirements shall be evaluated by the Department prior to use. The Department will perform the necessary testing according to the existing material requirements for the products as defined in Section 700 of the NYSDOT Standard Specifications or any Special Specification requirements. A request for inclusion on the AL shall be made by the manufacturer / supplier. The required submittal information for AL consideration can be found at:

https://www.dot.ny.gov/divisions/engineering/technical-services/materials-bureau/approved-list-submission

When products are proposed for which NYSDOT does not have Standard or Special Specifications, or where proven materials may be used in non-traditional applications, materials evaluations will be progressed based on review of technical details, performance histories, and/or physical testing. The Design-Builder will provide this information to prove the expected performance and durability of these unique materials before they can be used in the Work. Submissions shall include:

General Information

- Product Name
- General Description
- Purpose/Justification
- Manufacturer

- Supplier

Technical Details (Specifications)

- Materials (Include composition and MSDS sheets)
- Construction Details
- Testing, Inspection and Acceptance (identify standards like AASHTO, AREMA or ASTM)
- Maintenance requirements and frequencies that may apply for the intended application

Performance History

- Test Results (including test methods for durability, strength, appearance, etc.)
- Previous Uses (describing who, where, when, documented performance)

The evaluation of materials will depend on the uniqueness of the proposed materials, critical nature of the application, and detailed information provided. Evaluations will consist of the following:

- Materials deemed less critical will likely be accepted based on literature review only. Use of these materials can begin at any time.
- Materials deemed more critical will require both literature review and physical testing by the Department. Physical testing will commence only after literature review determines the material has a likely chance of meeting all performance criteria defined in the Design-Builder's Special Specifications. Conditional acceptance will be made upon completion of the literature review that will allow use of these materials prior to completion of physical testing. However, failure of materials during physical testing will result in an NCR for any materials incorporated into the Work. Rectification of the generated NCR shall be at the sole judgement of the Department.

The Design-Builder shall consider the uniqueness of the proposed materials, critical nature of the application, and detail of information provided for an evaluation. Additionally, The Design-Builder shall consider the duration of the evaluation required to reasonably progress all sampling, transportation, preparation, testing, and evaluation of results as defined in the material requirements for an item and may NOT use any part of the evaluation process as a basis for claim and/or delay. The Department will, when possible, perform AASHTO, AREMA and/or ASTM tests of the materials for acceptance purposes. When the Department does not have the capabilities to evaluate materials, testing labs may be hired for testing as needed at the Design-Builder's expense.

Use of any materials prior to acceptance by the Department shall be at the Design-Builder's risk. After acceptance, materials shall conform to specification requirements and subject to all QC/QA actions and Department verification.

Once in Construction, the Design-Builder is responsible for QC of all materials while the Department is responsible to verify the quality of all materials through the timely submission of Certified Test Reports. The Department will progress sampling and testing for verification of materials according to the established Quality Control Plan developed for the project.

SP-5. SPECIAL PROVISIONS FOR TESTING BRIDGE BEARINGS

Throughout this Special Provision, references to the Standard Specification shall mean the edition of the NYSDOT Standard Specifications, Construction and Materials, English Units, Office of Engineering, in effect on the Proposal Due Date.

Inspection, sampling, and testing shall be in accordance with the procedures noted for each bearing type below with the Design-Builder assuming the role of the Department. Inspection shall be done at the place of manufacture after all bearings in a lot are completely fabricated. Sampling shall be done randomly from all bearings in each lot. Inspection, sampling, and testing shall be completed by inspectors independent of the manufacturer. In addition, the Department will inspect and sample for verification purposes after the Design-Builder completes their inspection and sampling. Bearings may be shipped to the project site after inspection and sampling is completed by the Design-Builder and the Department.

5.1 DISC-DESIGN STRUCTURAL BRIDGE BEARINGS

The Design-Builder shall perform the inspection, sampling and testing of disc-design structural bridge bearings, on a lot-by-lot basis, in accordance with the procedures outlined in Materials Procedure 84-2 (Quality Assurance Inspection for 716.06.01, Disc-Design Structural Bridge Bearings 716.07.01 Pot-Design Structural Bridge Bearings) [to be referred to as MP84-2]. The requirements for these bearings are listed in the Standard Specifications.

5.1.1 Polyether Urethane Structural Element

The physical properties of the polyether urethane shall conform to the requirements ASTM D2240, ASTM D412 and ASTM D395 as listed in Section 700 of the Standard Specifications.

5.1.2 Steel Plates

Conform to the requirements of the steel designated on the Contract Plans and applicable provisions of the NYS Steel Construction Manual (refer to Section 700 of the Standard Specifications).

5.1.3 Stainless Steel

Stainless steel shall conform to the requirements of ASTM A167 or ASTM A240, Type 304. Refer to Section 700 of the Standard Specifications.

5.1.4 Polytetrafluoroethylene (PTFE) Sheet and Strip

Finished PTFE sheet and strip shall conform to the physical requirements of ASTM D638M and ASTM D792 as listed in Section 700 of the Standard Specifications.

5.1.5 Welding Procedure

All welding shall conform to, and all welders shall be qualified in accordance with the requirements of the NYS Steel Construction Manual.

5.1.6 Compression Strain

Requirements and test conditions are outlined in Section 700 of the Standard Specifications.

5.1.7 Sliding Coefficient of Friction

For all guided and non-guided expansion type disc-design bearings, the bearing manufacturer will test one production bearing per lot (see Section 700 of the Standard Specifications).

5.1.8 Rotation Test

The bearing manufacturer will test one production bearing per lot. Evaluation criteria are listed in Section 700 of the Standard Specifications.

5.2 POT-DESIGN STRUCTURAL BRIDGE BEARINGS

The Design-Builder shall perform the inspection, sampling and testing of pot-design structural bridge bearings, on a lot-by-lot basis, in accordance with the procedures outlined in Materials Procedure 84-2 (Quality Assurance Inspection Procedure for 716.06.01 Disc-Design Structural Bridge Bearings 716.07.01 Pot-Design Structural Bridge Bearings) [to be referred to as MP84-2]. The requirements for these bearings are listed in the Standard Specifications.

5.2.1 Elastomeric Rotational Element

The tensile properties of the neoprene and natural rubber elements shall conform to ASTM D412, ASTM D573 and ASTM D2240. These neoprene and natural rubber elements shall also conform to ASTM and AASHTO requirements as listed in Section 700 of the Standard Specifications [ASTM D2000, Line Call Out M2BC517A14B34, ASTM D2000, Line Call Out M4AA517A13B33, AASHTO Standard Specifications for Bridge Section 2.25.2, Materials 50 Durometer Hardness].

5.2.2 Steel

All steel will conform to the requirements of the steel designated on the Contract Plans and applicable provisions of the NYS Steel Construction Manual (refer to section 700 of the Standard Specifications).

5.2.3 Stainless Steel

Stainless steel shall conform to the requirements of ASTM A167 or ASTM A240, Type 304. Refer to Section 700 of the Standard Specifications.

5.2.4 Polytetrafluoroethylene (PTFE) Sheet and Strip

Finished PTFE sheet and strip shall conform to the physical requirements of ASTM D638M and D792 as listed in Section 700 of the Standard Specifications).

5.2.5 Welding Procedure

All welding shall conform to, and all welders shall be qualified in accordance with the requirements of the NYS Construction Manual.

5.2.6 Sliding Coefficient of Friction

For all guided and non-guided expansion type pot-design bearings, the bearing manufacturer will test one production bearing per lot (see Section 700 of the Standard Specifications).

5.2.7 Rotation Test

The bearing manufacturer will test one production bearing per lot. Evaluation criteria are listed in the Standard Specifications.

5.3 STEEL LAMINATED ELASTOMERIC BRIDGE BEARINGS AND ELASTOMERIC BRIDGE BEARINGS WITH EXTERNAL LOAD PLATES

The Design-Builder shall perform the inspection, sampling and testing of elastomeric bridge bearings, on a lot-by-lot basis, in accordance with the procedures outlined in Materials Method No.: NY 23 M (to be referred to as MM23). The requirements for these bearings are listed in the Standard Specifications.

5.3.1 Elastomeric Material

The physical properties of the cured elastomeric compound shall meet the requirements of ASTM D412 (see Section 700 of the Standard Specifications).

Manufacturer must certify that the elastomeric compound passes Grade 3 Low-Temperature Brittleness as determined by ASTM D746 – Brittleness Temperature of Plastics and Elastomers by Impact, Procedure B.

5.3.2 Internal Steel Plates (shims)

Conform to the requirements of ASTM A36M, ASTM 1008/A 1008/M or ASTM 1011/A 1011/M (Grade 33, 36 and 40).

5.3.3 External Load Bearing Plates and Steel Backing Plates

External load plates shall conform to the requirements of ASTM A36M and to the requirements of the Steel Construction Manual (SCM).

5.3.4 Welding Procedure

The bearing manufacturer shall submit a Welding Procedure to the Deputy Chief Engineer Structures (DCES) for each welding process to be used in the manufacture of the bearings. No welding shall be performed until the manufacturer receives an approved Welding Procedure.

5.3.5 Bearing Tolerances

The finished elastomeric bearings shall conform to the design dimensions, with the tolerances listed in Section 700 of the Standard Specifications.

5.3.6 Compression / Deflection

Test conditions are outlined in the Standard Specifications.

5.3.7 Adhesion

Visual inspection as outlined in the Standard Specifications.

SP-6. PAYMENT REDUCTIONS, LIQUIDATED DAMAGES AND EARLY COMPLETION BONUS

Time is an essential element of the Contract, and it is important that the Work be pursued vigorously to completion. The public is subject to detriment and inconvenience when full use of infrastructure cannot be maintained during the construction of the Project. Therefore, payment reductions and/or liquidated damages will be assessed against the Design-Builder under the circumstances specified below. Conversely, an early completion bonus will be paid to the Design-Builder for completing the Project before the Project Completion Date in accordance with the circumstances specified below.

6.1 PAYMENT REDUCTIONS AND LIQUIDATED DAMAGES

6.1.1 Project Completion

The Design-Builder shall pay liquidated damages, as described in DB § 108-03 – Liquidated Damages, and as shown on Form SCD, Table SCD-1, for failure to achieve Project Completion by the Project Completion Date. The Project Completion Date will be established based on the proposed duration provided in Table SCD-1 on Form SCD and described in Part 2 - DB 103-06 Sample Form of Contract Agreement, Article 4.2 Project Completion Date.

6.1.2 Interim Completion

The Interim Completion Milestone Date will be the date determined by adding the number of calendar days proposed by the Design-Builder on Form SCD (the Duration), to the date of the Notice to Proceed as issued by the Department. The Interim Completion Milestone Date may not be changed without written approval by the Department's Project Manager.

The Design-Builder shall be subject to liquidated damages for failure to meet the Interim Completion Milestone Date in accordance with Form SCD for each calendar day in excess of the total number of calendar days provided in the tables on Form SCD.

6.1.3 Impacts to Traffic

The Design-Builder shall be subject to payment reductions and liquidated damages for each calendar day that traffic is impacted, at each site, in excess of the number of Traffic Impact Days indicated in Table SCD-3 on Form SCD, and/or for each day that traffic is impacted in excess of the Traffic Impact Duration provided in Table SCD-3 on Form SCD. If both the number of Traffic Impact Days and the Traffic Impact Duration are exceeded at any given site, Liquidated Damages will be assessed twice each day both are exceeded.

6.1.4 Lane Closure Period Exceedances

Section not used.

6.1.5 Additional or Reduced Lane Closures

Section not used.

6.2 EARLY COMPLETION BONUS

Section not used.

SP-7. CONSTRUCTION INSPECTION REQUIREMENTS

These guidelines shall be used to develop the Design-Builder's Quality Control (QC) Plan. The intent of notes #1 and #2 below are to establish a minimum requirement for assigning the number of CI staff on the project. It is not intended to serve as a limit to the maximum number of CI staff that may be necessary or required based on the Design Builder's schedule, number of concurrent activities, or level of experience of the individual Construction Inspector(s) or other factors not described herein.

Construction Inspection QC Operations:

1. **Primary Shift**: The DB is required to furnish **no less than** 8 Full Time Construction Inspectors, FTCI, (not including the Resident Engineer or the Office Engineer). Upon commencement of the project (NTP), it is understood that the FTCIs will be logically increased to the inspection staff incrementally consistent with the project's schedule. The DB shall ensure adequate inspection staff is present on site, no less than two weeks prior to the need for the additional FTCI staff persons to allow for advance study and familiarization with the project. In any case, the 8 FTCI staff shall be on site for deployment no later than 180 calendar days from NTP. Subsequent to achieving the project substantial completion, as defined by the contract, the DB firm may similarly ramp down the inspection staff to align with the work remaining to complete the project and consistent with the project schedule, with the written approval of the Department's Project Manager. During project operations, the number of FTCI should be consistent with the Design Builder's planned operations and Table "Construction Inspection Requirements".

2. **Secondary or Multiple Shift:** In the event the DB elects to perform work in multiple shifts, then additional Construction Inspection staff must be added to the CI staffing requirement of note #1 above. However, at no time can there be less than 4 Full Time Construction Inspectors provided during any secondary or multiple shift time period. In addition, when secondary or multiple shifts are used, an Assistant Resident Engineer shall be present on site for the duration of the shift. The Assistant Resident Engineer shall be a Professional Engineer licensed in the State of New York.
3. **Additional Staffing Requirements:** The Design Builder is expected to balance the inspection needs with its schedule of simultaneous operations paying particular attention to the Continuous Inspection demands vs. the number of CI staff available. The accompanying table utilizes generic titles from the Standard Specification Table of Contents. Project specific situations may alter the requirements of an activity.
4. **Testing Requirements:** Material Testing Requirements are not incorporated into these guidelines. Refer to Part 3, Section 6, “Construction Quality Control and Quality Assurance”.
5. **Witness and Hold Point** requirements represent activities that require an inspector to determine conformance based on an evaluation performed after specific milestone is accomplished. These witness and hold thresholds may be determined based on the specific progression of each activity hold points must be agreed upon between the CQCE and the CQAE prior to commencing the work.
6. **Interval Definitions:**
    1. Intermittent (1) - Inspection required is based on the item(s) of work and Contractor’s means and methods
    2. Intermittent (2)-Inspection is required, at a minimum, on a daily basis
    3. Intermittent (3)-Inspection is required no less than twice per inspection shift.
    4. Continuous – Inspection is required continuously throughout the duration of the operation.
7. **Temporary Work:**

    Prior to the commencement of temporary work, the CQCE and the CQAE in conjunction with the Resident Engineer and Department’s PM shall discuss and reach concurrence on the inspection QC and QA requirements for the project and features defined to be of a temporary nature.
8. **Extra Work:**

    There will be no consideration of additional payment for CI staff related to Extra Work unless the minimum number of FTCI staff, as listed in Note 1 of this Special Provision, is exceeded.

CONSTRUCTION INSPECTION REQUIREMENTS			
SPECIFICATION SECTION	**INSPECTION INTERVAL / FREQUENCY**	**WITNESS & HOLD**	**COMMENTS**
SECTION 201 - CLEARING AND GRUBBING	Intermittent (1)		
SECTION 202 - DEMOLITION OF BUILDINGS AND STRUCTURES	Continuous		
SECTION 203 - EXCAVATION WITH BLASTING	Intermittent (1)	yes	continuous inspection for blast operations, intermittent for pre and post blast operations
SECTION 203 - EXCAVATION W/O BLASTING	Intermittent (3)		
SECTION 203 - EMBANKMENT	Intermittent (1)	Yes	completion of each lift
SECTION 204 - FLOWABLE FILL	Intermittent (1)		
SECTION 205 - CONTAMINATED SOIL	Continuous		
SECTION 206 - STRUCTURE EXCAVATION	Intermittent (1)	Yes	verify Line, grade accuracy
SECTION 206 - TRENCH AND CULVERT EXCAVATION	Continuous		*if backfill is included
SECTION 207 - GEOSYNTHETICS	Intermittent (1)		
SECTION 208 - STORMWATER MANAGEMENT FACILITIES	Intermittent (1)		
SECTION 209 - SOIL EROSION AND SEDIMENT CONTROL	Intermittent (1)		Plus Post storm for repairs and modifications
SECTION 210 - REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING MATERIAL (BUILDINGS, BRIDGES AND HIGHWAYS)	Intermittent (1)		
SECTION 211 - INTERNALLY STABILIZED CUT STRUCTURES	Continuous		
SECTION 212 - ROCK SLOPE REINFORCEMENT AND CATCHMENT SYSTEMS	Intermittent (1)		
SECTION 304 - SUBBASE COURSE	Intermittent (1)	Yes	proof rolling required, verify subgrade surface: line and grade quality
SECTION 307 - HYDRATED LIME STABILIZED SUBGRADE	Intermittent (1)		as needed

CONSTRUCTION INSPECTION REQUIREMENTS			
SPECIFICATION SECTION	**INSPECTION INTERVAL / FREQUENCY**	**WITNESS & HOLD**	**COMMENTS**
SECTION 402 - HOT MIX ASPHALT (HMA) PAVEMENTS	Continuous		
SECTION 405 - COLD MIX BITUMINOUS PAVEMENT (OPEN GRADED)	Continuous		
SECTION 407 - TACK COAT	Continuous		
SECTION 410 - CHIP SEAL	Continuous		
SECTION 412 - CRACK SEALING ASPHALT PAVEMENTS	Intermittent (1)	Yes	upon addition of new material to applicator
SECTION 413 - MICRO-SURFACING	Continuous		
SECTION 417 – HOT MIX ASPHALT USING RECYCLING TREATMENTS	Continuous		
SECTION 418 – ASPHALT PAVEMENT JOINT ADHESIVE	Intermittent (1)		
SECTION 419 - FOG SEAL	Intermittent (1)		
SECTION 420 - POROUS ASPHALT PAVEMENT	Continuous		
SECTION 490 - COLD MILLING	Intermittent (1)	Yes	verify grade and quality of surface
SECTION 502 - PORTLAND CEMENT CONCRETE PAVEMENT	Continuous		
SECTION 503 - PORTLAND CEMENT CONCRETE FOUNDATION FOR PAVEMENT	Intermittent (1)		
SECTION 551 - PILES AND PILE DRIVING EQUIPMENT	Continuous		
SECTION 552 - EXTERNALLY STABILIZED CUT STRUCTURES (SHEETING)	Continuous		
SECTION 553 - COFFERDAMS AND WATERWAY DIVERSION STRUCTURES	Continuous		
SECTION 554 - FILL TYPE RETAINING WALLS	Continuous		
SECTION 555 - STRUCTURAL CONCRETE	Continuous		
SECTION 556 - REINFORCING STEEL FOR CONCRETE STRUCTURES	Intermittent (2)	Yes	final inspection of rebar and forms prior to concrete placement

CONSTRUCTION INSPECTION REQUIREMENTS			
SPECIFICATION SECTION	**INSPECTION INTERVAL / FREQUENCY**	**WITNESS & HOLD**	**COMMENTS**
SECTION 557 - SUPERSTRUCTURE SLABS, SIDEWALKS ON BRIDGES, AND STRUCTURAL APPROACH SLABS	Continuous	Yes	daily Inspection and approval of all elements prior to concrete placement
SECTION 558 - LONGITUDINAL SAWCUT GROOVING OF STRUCTURAL SLAB SURFACE	Intermittent (1)	Yes	After first pass to confirm depth and spacing
SECTION 559 - PROTECTIVE COATINGS AND GRAFFITI REMOVAL	Intermittent (3)		
SECTION 560 - MASONRY	Intermittent (1)		
SECTION 562 - REINFORCED CONCRETE THREE-SIDED STRUCTURES	Continuous		
SECTION 563 - PRESTRESSED CONCRETE UNITS (STRUCTURAL)	Continuous		
SECTION 564 - STRUCTURAL STEEL	Continuous		
SECTION 565 - BRIDGE BEARINGS	Intermittent (1)	Yes	final survey/acceptance prior to structural steel placement
SECTION 566 - MODULAR EXPANSION JOINT SYSTEMS	Intermittent (1)	Yes	When joint is set
SECTION 567 - BRIDGE JOINT SYSTEMS	Intermittent (1)	Yes	When joint is set
SECTION 568 - BRIDGE RAILING	Intermittent (1)		
SECTION 569 - PERMANENT CONCRETE TRAFFIC BARRIER FOR STRUCTURES	Continuous		
SECTION 570 - PAINT REMOVAL OPERATIONS	Intermittent (3)	Yes	verification of paint removal
SECTION 571 - DISPOSAL OF PAINT REMOVAL WASTE	Intermittent (2)	Yes	Whether carrier is approved prior to loading
SECTION 573 - STRUCTURAL STEEL PAINTING: FIELD APPLIED - TOTAL REMOVAL	Intermittent (1)	Yes	verification of paint removal and inspection of each paint coat prior to next paint coat
SECTION 574 - STRUCTURAL STEEL PAINTING: OVERCOATING AND LOCALIZED	Intermittent (1)	Yes	

CONSTRUCTION INSPECTION REQUIREMENTS			
SPECIFICATION SECTION	**INSPECTION INTERVAL / FREQUENCY**	**WITNESS & HOLD**	**COMMENTS**
SECTION 576 - BRIDGE DRAINAGE SYSTEM	Intermittent (1)		verify final install quality
SECTION 578 - BONDED CONCRETE OVERLAY FOR STRUCTURAL SLABS	Continuous		
SECTION 579 - STRUCTURAL SLAB RECONSTRUCTION PREPARATION	Continuous		
SECTION 580 - REMOVAL OF STRUCTURAL CONCRETE	Intermittent (1)		
SECTION 581 - REMOVAL OF BRIDGE OVERLAYS	Intermittent (1)		
SECTION 582 - REMOVAL AND REPLACEMENT OF STRUCTURAL CONCRETE	Intermittent (1)	Yes	When competent concrete has been reached; prior to forming
SECTION 583 - SHOTCRETE	Continuous		
SECTION 584 - SPECIALIZED OVERLAYS FOR STRUCTURAL SLABS	Continuous		
SECTION 585 - STRUCTURAL LIFTING OPERATIONS	Continuous		
SECTION 586 - MISCELLANEOUS STRUCTURAL RECONSTRUCTION	Continuous		
SECTION 587 - BRIDGE RAILING RECONSTRUCTION	Intermittent (1)		
SECTION 588 - BRIDGE JOINT REHABILITATION	Continuous		
SECTION 589 - REMOVAL OF STRUCTURAL STEEL	Continuous		
SECTION 590 - ADJUSTMENT OF BRIDGE APPURTENANCES	Intermittent (1)		
SECTION 595 - WATERPROOFING SYSTEMS FOR STRUCTURES	Continuous		
SECTION 596 - OPEN STEEL FLOOR	Intermittent (1)		
SECTION 601 - ARCHITECTURAL PAVEMENTS AND TREATMENTS	Intermittent (1)		
SECTION 602 - REHABILITATION OF CULVERT AND STORM DRAIN PIPE	Continuous		

CONSTRUCTION INSPECTION REQUIREMENTS			
SPECIFICATION SECTION	**INSPECTION INTERVAL / FREQUENCY**	**WITNESS & HOLD**	**COMMENTS**
SECTION 603 - CULVERTS AND STORM DRAINS	Continuous		
SECTION 604 - DRAINAGE STRUCTURES	Continuous		
SECTION 605 - UNDERDRAINS	Intermittent (1)		
SECTION 606 - GUIDE RAILING AND MEDIAN BARRIER	Intermittent (1)		
SECTION 606 - CIP CONCRETE BARRIER	Continuous		
SECTION 607 - FENCES	Intermittent (1)		
SECTION 608 - SIDEWALKS, DRIVEWAYS, BICYCLE PATHS, AND VEGETATION CONTROL STRIPS	Continuous		
SECTION 609 - CURB AND CURB & GUTTER	Continuous		
SECTION 610 - GROUND VEGETATION - PREPARATION, ESTABLISHMENT AND MANAGEMENT	Intermittent (1)		
SECTION 611 - PLANTING, TRANSPLANTING AND POST PLANTING CARE	Intermittent (1)		
SECTION 614 - PRUNING, IMPROVING AND REMOVING EXISTING VEGETATION	Intermittent (1)		
SECTION 617 - INVASIVE SPECIES MANAGEMENT	Intermittent (1)		
SECTION 619 - WORK ZONE TRAFFIC CONTROL	Continuous		Dedicated WZTC CI shall be provided for both day and night shifts. This CI shall have no additional responsibilities other than WZTC.
SECTION 620 - BANK AND CHANNEL PROTECTION	Intermittent (1)		
SECTION 621 - CLEANING CULVERTS, DRAINAGE STRUCTURES AND EXISTING ROADSIDE SECTIONS	Intermittent (1)	yes	verification of cleaning

CONSTRUCTION INSPECTION REQUIREMENTS			
SPECIFICATION SECTION	**INSPECTION INTERVAL / FREQUENCY**	**WITNESS & HOLD**	**COMMENTS**
SECTION 622 - BUILDINGS AND MISCELLANEOUS STRUCTURES	Intermittent (1)		
SECTION 623 - SCREENED GRAVEL, CRUSHED GRAVEL, CRUSHED STONE, CRUSHED SLAG	Intermittent (1)		
SECTION 624 - PAVED GUTTERS	Continuous		
SECTION 625 - SURVEY OPERATIONS	Intermittent (2)		
SECTION 629 - PETROLEUM STORAGE TANK CLOSURE	Continuous		
SECTION 630 - BARRICADES	Intermittent (2)		
SECTION 633 - CONDITIONING EXISTING PAVEMENT PRIOR TO HOT MIX ASPHALT (HMA) OVERLAY	Continuous		
SECTION 635 - CLEANING AND PREPARATION OF PAVEMENT SURFACES FOR PAVEMENT MARKINGS	Continuous		
SECTION 638 - WHITE SYNTHETIC RESIN BINDER CONCRETE	Continuous		
SECTION 640 - REFLECTORIZED PAVEMENT MARKING PAINTS	Continuous		
SECTION 641 - BRIDGE WASHING	Intermittent (1)	Yes	Hold when certain elements have been cleaned
SECTION 642 - ROADSIDE MAINTENANCE	Intermittent (3)		
SECTION 643 - NOISE BARRIERS	Continuous		
SECTION 644 - OVERHEAD SIGN STRUCTURES	Continuous		
SECTION 645 - SIGNS	Intermittent (1)		
SECTION 646 - DELINEATORS, REFERENCE MARKERS AND SNOWPLOWING MARKERS	Intermittent (1)		
SECTION 647 - REMOVING, STORING, AND RELOCATING SIGNS, SIGN PANEL ASSEMBLIES, SIGN SUPPORTS, AND	Intermittent (1)		

CONSTRUCTION INSPECTION REQUIREMENTS			
SPECIFICATION SECTION	**INSPECTION INTERVAL / FREQUENCY**	**WITNESS & HOLD**	**COMMENTS**
FOUNDATIONS			
SECTION 648 - SUBSURFACE EXPLORATIONS	Intermittent (2)		
SECTION 649 - AUDIBLE ROADWAY DELINEATORS	Intermittent (1)		
SECTION 650 - TRENCHLESS INSTALLATION OF CASING	Continuous		
SECTION 654 - IMPACT ATTENUATORS - PERMANENT	Intermittent (1)		
SECTION 655 - FRAMES, GRATES AND COVERS	Intermittent (1)		
SECTION 656 - MISCELLANEOUS METALS	Intermittent (1)		
SECTION 657 - PAINTING GALVANIZED AND ALUMINUM SURFACES	Intermittent (1)		
SECTION 659 - TELECOMMUNICATION UTILITIES	Continuous		
SECTION 660 - UTILITIES	Continuous		
SECTION 661 - ELECTRIC UTILITIES	Continuous		
SECTION 662 - GAS, OIL & STEAM UTILITIES	Continuous		
SECTION 663 - WATER SUPPLY UTILITIES	Continuous		
SECTION 664 - SANITARY SEWER UTILITIES	Continuous		
SECTION 670 - HIGHWAY LIGHTING SYSTEM	Continuous		
SECTION 675 - RAILROAD TRACK AND APPURTENANCES	Continuous		
SECTION 680 - TRAFFIC SIGNALS	Intermittent (1)		
SECTION 683 - INTELLIGENT TRANSPORTATION SYSTEMS	Intermittent (1)		
SECTION 685 - EPOXY REFLECTORIZED PAVEMENT MARKINGS	Continuous		

CONSTRUCTION INSPECTION REQUIREMENTS			
SPECIFICATION SECTION	**INSPECTION INTERVAL / FREQUENCY**	**WITNESS & HOLD**	**COMMENTS**
SECTION 687 - THERMOPLASTIC REFLECTORIZED PAVEMENT MARKINGS	Continuous		
SECTION 688 - PREFORMED REFLECTORIZED PAVEMENT MARKINGS	Continuous		
1. Intermittent (1): inspection as needed based on the item/s of work and contractor's mean and methods			
2. Intermittent (2): inspection on a daily basis			
3. Intermittent (3): inspection is required no less than twice per inspection shift.			
4. Continuous: inspection is required continuously throughout the duration of the operation.			

SP-8. COST LOADED SCHEDULE

The Design-Builder shall provide a means to verify costs that the Design-Builder is entitled to under the contract terms, following the Work Payment Structure (WPS), through reports generated from the cost and resource loaded schedule that reflect the physical percentage of work that has been completed. The Design-Builder is required to enter the unit price for each activity in the schedule using the Expenses function in P6. The appropriate cost shall be assigned to each activity, enabling the schedule to be fully cost loaded. The Design-Builder shall enter the costs, units, and major quantities under “Expenses” in Primavera. Associated expenses shall correlate with the work payment structure utilizing the cost codes features and each activity name / description shall be assigned with one cost code which contains a single wok payment structure (WPS) in the schedule. This will enable a report to be generated from the regular Progress Schedule Updates that reflects the amount that the Design-Builder is requesting payment. The report shall be based on the physical percentage of work completed within the reporting period, and must comply with the cost percentages allowed for the WPS deliverables in the Design-Build contract.

SP-9. DB PERFORMANCE ENGINEERED CONCRETE MIXTURES

DB PERFORMANCE ENGINEERED CONCRETE MIXTURES

DESCRIPTION

Develop a Performance Engineered Concrete Mixture for applications to replace Standard Classes of concrete to meet specified performance criteria when desired. Consideration of any acceleration and impacts on shrinkage shall be considered when developing a mixture. Requirements herein do not supersede other contractual requirements for Mass Placement concrete.

MATERIALS

The provisions of §501 shall apply, except as modified herein.

1. Use materials meeting the requirements of 501-2.02

2. Design a concrete mixture proportioned according to the American Concrete Institute Manual of Concrete Practice, ACI 211.1, *Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete* and the provisions of AASHTO R101, *Developing Performance Engineered Concrete Pavement Mixtures*. Produce a homogeneous mixture using Approved List materials to achieve the performance requirements of Table 501. The Contractor shall develop mixtures with a well graded, optimized aggregate gradation to minimize the paste content while maintaining workability. Aggregate gradation shall meet the requirements of the Tarantula curve (or Shilstone method or 8-18 method) as defined by FHWA at https://www.fhwa.dot.gov/pavement/concrete/pubs/hif15019.pdf.

3. Designed concrete mixture to meet the following requirements:

- ***Aggregate Gradation***
    - **Concrete Sand** The Contractor shall use only sand meeting the requirements of §703-07, Concrete Sand or graded according to ASTM C-33 size designations to optimize aggregate gradation of the resulting concrete mixture.
    - **Coarse Aggregate** The Contractor shall use only crushed stone, crushed gravel, or crushed slag meeting the requirements of §703-02, Coarse Aggregates in either one or a combination of size designations as specified in Table 703-4, Sizes of Stone, Gravel, and Slag, or graded according to ASTM C-33 size designations to optimize aggregate gradation of the resulting concrete mixture. Gradations for coarse aggregates shall be done over a full nest of sieves as follows: 1 ½", 1", 3/4", 1/2", 3/8", #4, #8, #16, #30, #50, #100 and #200.
    - The maximum aggregate size used in a concrete mixture shall be dependent on the size and shape of the concrete member and on the amount and distribution of reinforcing steel. The Contractor shall select the nominal maximum size of aggregate which does not exceed:
        i. three-quarters of the clear space between reinforcing bars and between the reinforcing bars and the forms; and
        ii. one-third the thickness of the placement; and
        iii. one-fifth the narrowest dimension between form sides

- ***Aggregate Friction.*** Sample and test aggregate for friction characteristics according to the procedures of Materials Method 28 "Friction Aggregate Control and Test Procedures."

- ***Aggregates and Cementitious Materials.*** Cement and aggregate combinations shall be selected to mitigate the potential for Alkali Silica Reactivity (ASR). Specifically, certain aggregates appear in the Approved List of Sources of Fine & Coarse Aggregates that have use limitations if combined with a high-alkali Portland cement. The Regional Materials Engineer may allow the use of these aggregates in combination with high-alkali cements provided that pozzolans are substituted for cement in the following way:

POZZOLAN SUBSTITUTIONS	
Application	**Substitute Cement by Mass With**
bridge decks, approach slabs, and sidewalks	20% to 25% Class F Fly Ash (711-10) or 20% to 25% GGBFS in combination with minimum 6% Microsilica
All other applications	Minimum 20% Class F Fly Ash (711-10) or Minimum 35% GGBFS

  Alternatively, the contractor may develop a mixture according to AASHTO R-80 (17), *Standard Practice for Determining Reactivity of Concrete Aggregates and Selecting Appropriate Measures for Preventing Deleterious Expansion in New Concrete Construction*, to determine preventive measures to minimize the risk of expansion when reactive aggregates are used in combination with high alkali cement. Use of this method or other means to mitigate ASR shall be with the approval of the Director, Materials Bureau.

- ***Mixture Performance Criteria.*** Proportion all ingredients to achieve the required performance criteria defined in Table 501, Performance Concrete Mixtures. The Contractor is responsible to assure the different materials selected for use in the PCC mixture are compatible with one another to provide a durable concrete meeting the performance requirements of this specification. The requirements for special properties covered in other pay items and/or the use of special materials shall be included in addition to the requirements of this specification. Mixture requirements for internal curing, mass placement, self-consolidating concrete (SCC), high early strength (HES) and other concrete mixtures shall be adhered to in conjunction with the performance criteria of this specification.

- ***Internal Curing.*** Mixtures for bridge decks, approach slabs, sidewalks and safety walks on decks, and concrete barrier on decks shall include the use of light weight fine aggregates for internal curing in accordance with the NYSDOT Bridge Manual.

4. Perform mix development testing in accordance with ASTM C143, C231, C192, C39, AASHTO T358 and T395 to assure all performance criteria can be achieved during production and placement.

5. Upon completion of mixture design, submit a copy of the proposed mixture design(s) and trial batch test results to the Department at least 45 days prior to use, for evaluation. Submit sufficient data to permit an informed evaluation. Include at least the following:

    - Concrete mixture proportions.
    - Aggregate composite gradation of mixture.
    - Material sources. Include fineness modulus and specific gravity for all aggregates.
    - Compressive Strength at 3, 7, 14 and 28 days or as required for the intended application.
    - Target slump for placement(s).
    - Target air content of plastic concrete.
    - SAM number results for trial mix
    - Paste volume calculations for mix
    - Resistivity test data

Changes other than minor fluctuations in admixture dosage rates may require a new mixture design and trial batch submittal.

DB PERFORMANCE ENGINEERED CONCRETE MIXTURES

Table 501 Performance Concrete Mixtures[1]				
Design Mix Performance Criteria				
Primary Application / use[2]	**Compressive Strength[8] (psi)**	**Air Content % desired (range)**	**Resistivity[3] (kΩ-cm) α = 1.5**	**Specialty Criteria: Scaling, freeze/thaw, or shrinkage requirements**
Superstructures: bridge decks, approach slabs, sidewalk and safety walk on decks, concrete barrier	4000	5-10	≥30	ASTM C666 DF ≥ 90% **or** AASHTO T395 SAM number ≤0.20 **and** Shrinkage per AASHTO R101, Paste Factor ≤27%
Substructures: abutments, backwalls, wing walls, columns, pier caps, pedestals	4000	5-10	≥30	ASTM C666 DF≥90% **or** AASHTO T395 SAM Number ≤0.20 **and** Shrinkage per AASHTO R101, Paste Factor ≤27%
Footings[7]	4000	5-10[5]	≥18 [6]	--
Piles, drilled shafts, underground applications	4000	5-10[5]	≥18 [6]	--
Tremie	4000	5-10[5]	≥18 [6]	--
Overhead sign bases, signal pole bases, and bases supporting overhead uses	4000	5-10	≥18 [6]	ASTM C666 DF > 90% or AASHTO T395 SAM number ≤ 0.20
Sign bases, misc items	3000	5-10	--	--
Sidewalks, gutters, curbs	4000	5-10	≥21	ASTM C666 DF ≥ 90% or AASHTO T395 SAM number ≤ 0.20
Barriers	4000	5-10	≥21	ASTM C666 DF > 90% or AASHTO T395 SAM number ≤ 0.20
Headwalls, drainage elements, pipe inverts	4000	5-10	≥18	ASTM C666 DF > 90% or AASHTO T395 SAM number ≤ 0.20
Maintenance repair	3000	5-10	≥18	

NOTES :

1. Mixture proportions will be provided by the contractor, using the fineness modulus and bulk specific gravities (saturated surface dry) of the aggregates proposed for use.

2. Any mixture developed for accelerated strength gain or early loading application shall have the rate of strength gain evaluated at the time of mixture development. The Contractor shall produce and place a 4.0 cy (minimum) trial batch at an off-contract location selected by the Contractor and agreed upon by the Engineer. The trial batch shall use the same materials and processes as those to be used to produce concrete for the contract. The Contractor shall provide the Engineer a 14-day minimum advance notification of trial batch production and shall produce and place the trial batch in the presence of the Engineer and/or the Regional Materials Engineer. The Contractor shall:
   - Determine the compressive strength of the trial batch concrete at the desired time as specified in the contract documents or to meet project requirements.
   - Provide an American Concrete Institute (ACI) Certified Concrete Field Testing Technician, Grade I, or higher, to perform all testing.

3. Resistivity requirements based on 4 in x 8 in cylinders measured at 28 days. Testing procedures are in accordance with AASHTO T358. Specimens not meeting resistivity criteria at 28 days will be returned to curing until 56 days of age and retested. Equivalent requirements if using Rapid Chloride Permeability Testing in accordance with AASHTO T277 for mixture development shall meet the conditions defined in the following table - Resistivity / Permeability Equivalent Requirements.

RESISTIVITY / PERMEABILITY EQUIVALENT REQUIRMENTS		
Chloride Ion Permeability	**Surface Resistivity Test**	**Rapid Chloride Permeability Test**
	4 in x 8 in cylinder	4 in dia x 2 in thick
	(kΩ-cm) $\alpha = 1.5$	Charge passed – Coulombs
High	<12	>4000
Moderate	21 – 12	>2000 – 4000
Low	37 – 21	>1000 – 2000
Very Low	254 - 37	100 – 1000
Negligible	>254	<100

4. Specialty criteria requirements shall be determined for mixture qualification unless otherwise noted. Freeze thaw durability shall be determined by ASTM C666, AASHTO T395, or ASTM C457. The use of AASHTO T395 with the Super Air Meter (SAM) shall meet the following: For mixture development, SAM $\leq$ 0.20. During concrete production on a project, SAM $\leq$ 0.30. Mixture adjustment should be considered when SAM is between 0.25 to 0.30, in accordance with AASHTO R101. Shrinkage shall be determined by volume of paste (ie: paste factor) as defined by AASHTO R101.

5. These mixes only require air content if the finished concrete will be exposed to freeze / thaw environments, defined as being within 4' of the atmospheric conditions

6. Any concrete that is buried or submerged in high sulfate and saltwater areas shall be designed for Low Chloride Ion Penetration requirements with a resistivity > 30 kΩ-cm.

7. Mass placements shall not use accelerated mixtures.

8. The design mixture performance criteria of Table 501 is also applicable to mixtures which require design compressive strength greater than 4000 psi.

SP-10. INSURANCE REQUIREMENTS

INSURANCE COVERAGE

General insurance requirements are specified in Standard Specifications DB 107-06 – Insurance.

As new work locations and involved parties become known, the Contractor shall secure coverage for any new parties as necessary per DB 107-06A.4. Proof of coverage for the new additional insured parties shall be provided to the Department.

Proof of the Contractor's Workers' Compensation insurance and Disability insurance is required to be provided with the contract agreement. ***Acceptable proof of all applicable insurances shall be provided before commencing work.***

Required Insurances
The following insurances are required on all contracts:

- ***Workers' Compensation***
- ***Commercial General Liability***
- ***Umbrella or Excess Liability***
- ***Disability***
- ***Commercial Automobile***
- ***Special Protective and Highway Liability***

Additional Required Insurances
If the box is checked, it indicates that it is a known additional required insurance:

☒ Professional Liability Insurance

Known to be required due to professional service requirements associated with:

- ☐ ***Item 202.XX Demolition of Buildings and Structures***
- ☐ ***Item 211.XX Internally Stabilized Cut Structures***
- ☐ ***Item 551.12 Splices for Steel H-Piles (mechanical splices)***
- ☐ ***Item 553.XX Cofferdams***
- ☐ ***Item 554.XX Fill Type Retaining Walls***
- ☐ ***Item 562.XX Reinforced Concrete 3 Sided Structure***
- ☐ ***Item 570.XX Paint Removal Operations***
- ☐ ***Item 585.XX Structural Lifting***
- ☐ ***Item 586.XX Miscellaneous Structural Reconstruction***
- ☐ ***Item 604.XX Drainage Structures (concrete)***
- ☐ ***Item 619.06nn Temporary Structures***
- ☐ ***Item 625.XX Survey***
- ☐ ***Item 650.XX Trenchless Installation of Casing***
- ☐ ***Item 670.XX Highway Lighting System***
- ☐ ***Item 680.XX Traffic Signal Poles***
- ☐ ***Other:***

☐ Marine Protection and Indemnity Insurance

Known to be required due to contract work associated with:

☐ ***Expected work from watercraft on navigable waters at a known location***

☐ ***A rescue boat/skiff is required*** (e.g., there will be contract work over water ≥ 5 feet deep, contract work over swift moving water ≥ 2 feet deep, or other situations described in ***§***107-05I – *Working Over or Near Water*)

☐ ***Railroad Protective Liability*** Insurance

A foreseeable risk has been identified for contract work to potentially negatively impact the safety of railroad movements and/or cargo at a known work location.

Railroad Entity to be Insured:
Policy Single Limit $ / Aggregate Limit $

☒ Pollution Liability Insurance

Known to be required due to contract work associated with:

☐ ***Item 205.XX Contaminated Soil Operations***
☐ ***Item 210.XX Removal & Disposal of Asbestos-Containing Material (buildings, bridges, and highways)***
☐ ***Item 570.XX Paint Removal Operations***
☐ ***Item 571.XX Disposal of Paint Removal Waste***
☐ ***Item 629.XX Petroleum Storage Tank Closure Operations***
☐ ***Other:***

Policy Single Limit $1,000,000 / Aggregate Limit $1,000,000

☐ Unmanned Aircraft Systems Liability Insurance

There is required contract work involving unmanned aircraft.

Minimum Required Policy Limit: $

☒ Builders' Risk Policy

The Department has determined that certain contract work is required to be insured under a Builders' Risk policy.

Minimum Required Policy Limit: $50,000,000 (Deductible $1,000,000)
Structure to be Insured: All Structures being constructed or rehabilitated in this Contract

LIST OF ADDITIONAL INSURED PARTIES

In accordance with Standard Specifications §107-06A.4 applicable insurance policies shall be endorsed to provide coverage to:

- ***The State of New York / New York State Department of Transportation***
- ***Any municipality in which the work is being performed***
- ***Any public benefit corporation, railroad, or public utility whose property or facilities are affected by the work***
- ***Any consultants working for or on the project***
- ***Agents or employees of the above listed parties***

As any new locations of work are defined or added to the Contract, the Contractor shall extend coverage to any new parties that warrant coverage as per ***§107-06A.4. P***roof of coverage for the new additional insured parties shall be provided to the Department.

Coverage shall be extended to the following known additional insured parties:

- The State of New York/New York State Department of Transportation
- Queens County
- City of New York
- New York City Department of Sanitation
- New York City Department of Transportation
- New York City Department of Transportation – Division of Streetlighting
- New York City Department of Parks and Recreation
- Verizon New York Inc.
- Consolidated Edison Company New York, Inc.
- Charter Communications, Inc.

SP-11. MIGRATORY BIRD PROTECTION AND AVOIDANCE

11.1 MIGRATORY BIRD PROTECTION AND AVOIDANCE

1. Under the Migratory Bird Treaty Act, (MBTA) it is unlawful by any means or manner, to intentionally or unintentionally take, capture or kill any migratory bird, unless a federal permit is first secured.

2. Protected migratory birds include all waterfowl, herons, hawks, owls, eagles and songbirds, including swallows and eastern phoebes. Their feathers, nests, and eggs are also protected under the MBTA.

3. Exempt, or not afforded protection under the MBTA, are rock doves (domestic pigeons), house sparrows (English Sparrows), European starlings, and monk parakeets. Although these species are not protected under the Act, they should still be treated as humanely as possible. The Design-Builder shall notify the Department's Project Manager and the Department's Project Manager will alert the NYSDOT Regional Construction Environmental Coordinator (CEC), when active nests of the above species are found. The Department's Project Manager and the CEC will evaluate the potential for removing the young from the nest to be raised by a Wildlife Rehabilitator.

4. Bridge cleaning and/or repair, bridge replacement – Bridges scheduled for cleaning, repair or replacement shall be inspected by the Design-Builder for bird nesting activity prior to commencing any contract related activity. Ideally this would involve a screening of all potential bridge locations for bird activity and bird nests before work operations begin.

5. Clearing and grubbing operations – Migratory birds can also be found in trees, brush and open fields. All areas of clearing and grubbing, staging areas or other areas of potential disturbance shall be inspected by the Design-Builder for bird nesting activity prior to commencing any disturbance activity. The Design-Builder shall schedule work to minimize the potential conflict between this federal law and work operations.

6. Locations that are identified as containing or harboring active migratory bird nests shall be evaluated for potential impacts or illegal taking of migratory birds, nests or eggs. If a nest (or nests) is identified by the Design-Builder on a bridge between April 15 and August 15 (potential breeding season), it should be observed for a period of several hours to determine if it is active or not. An active nest during the breeding season is indicated by adult birds constructing the nest, birds coming and going from the nest, sounds of young in the nest, or bird species matching the bird nest type flying in the vicinity of the nests. If none of these activities are observed, then the nest can be assumed inactive and can be removed and maintenance/construction activities can begin.

7. If the nest(s) is determined to be active, the Design-Builder shall not disturb, damage or remove the nest until the young are fledged (leave the nest). After fledgling occurs, the nests can be removed, and work can begin. This should be done as quickly as possible to prevent birds beginning a second nest brood at the

same location. The Design-Builder shall, at no time destroy nest of hawks, falcons or eagles, as these species return to the same nest year after year.

If there are any questions regarding how to proceed with nesting migratory birds, the Design-Builder shall immediately contact the Department's Project Manager. The Department's Project Manager will alert the Construction Environmental Coordinator (CEC). An active nest or migratory bird CANNOT be removed, harmed or killed without a federal permit.

11.2 MIGRATORY BIRD TREATY ACT – BIRDS NESTING ON OR UNDER BRIDGES

A variety of bird species nest on or under bridges. State and Federal laws protect some of these bird species (and their nests, eggs and young). Under the Migratory Bird Treaty Act (MBTA), it is unlawful to intentionally or unintentionally take, capture or kill any migratory bird unless a Migratory Bird Permit is first obtained from the U.S. Fish and Wildlife Service. Each violation of the MBTA can result in a fine of $15,000, imprisonment for six months, or both.

Migratory bird species that are protected under the MBTA include all waterfowl, herons, eagles, hawks, falcons, owls and songbirds (including swallows, eastern phoebes and American robins).

Migratory bird species that are not protected under the MBTA are Rock Doves (domestic pigeons), English Sparrows, European Starlings and Monk Parakeets. Although these species are not protected, they should be treated in a humane manner. The Design-Builder is encouraged to relocate active nests of unprotected species into nearby trees or to transfer the nests to a wildlife rehabilitator.

Before commencing any bridge-related construction activities, the Engineer and Design-Builder shall survey the bridge(s) for bird nests. If the Engineer and Design-Builder observe bird nests on or under the bridge(s), the following must be determined for each nest:

11.2.1 Is the nest active (adult birds, eggs or young birds in the nest).

11.2.2 Is the nest inhabited by a protected migratory bird species.

A nest should be carefully examined or observed for several consecutive hours to determine if it is active or inactive. An active nest is indicated by adult birds constructing the nest, birds flying to and from the nest, sounds of young in the nest, or bird species matching the nest-type flying in the vicinity of the nest. If none of these activities are observed, the nest can be assumed to be inactive and it can be removed, and bridge work can commence.

If the nest is determined to be active, it must be carefully examined for the presence of young birds and eggs. If young birds or eggs are absent, the nest can be removed

anytime an adult bird is not present. Bridge work should commence as quickly as possible to prevent birds from beginning a second nest brood at the same location.

If young birds or eggs are present in the nest, it cannot be removed, damaged or disturbed until the young birds have fledged (leave the nest). After the young have fledged, the nest can be removed, and bridge work may commence. Work should commence as quickly as possible to prevent birds from beginning a second nest brood at the same location.

Listed below are the most common migratory birds that nest on or under bridges, and dates when eggs and young birds may be in the nests:

Bird Species	**Earliest and Latest Dates Eggs May Be Present**	**Earliest and Latest Dates Young May Be Present**
Cliff Swallow	April 19 – July 31	May 1 – August 23
Barn Swallow	April 14 – August 10	April 27 – September 22
Eastern Phoebe	March 25 – August 4	April 22 – September 6
American Robin	March 23 – September 1	April 12 – September 25
Mourning Dove	March 9 – September 28	April 6 – October 26
Peregrine Falcon	March 2 – June 19	April 19 – August 31
Red Tail Hawk	February 25 – July 25	March 31 – August 21

Hawks, falcons and eagles return to and use the same nest year after year. If the nest will not interfere with the proposed bridge work, it shall not be removed or damaged. However, if work will affect the nest, it can only be removed after consultation with the New York State Department of Environmental Conservation and the United States Fish and Wildlife Service.

Data from 2000-2005 New York State Breeding Bird Atlas, [*The Second Atlas of Breeding Birds in New York State*, edited by K.J. McGowan and K. Corwin, December 2008, Cornell University Press.]

SP-12. PORTABLE WORK ZONE CAMERAS

HIGHWAY DESIGN MANUAL

Chapter 16

Work Zone Traffic Control

Work Zone Camera Guidance

March 4th, 2020

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16.3.8 Work Zone Cameras

Use of work zone cameras is an effective way, in addition to work zone signing, PVMS, and other tools to reduce speeds and driver aggression - and thus provide an added degree of safety to both motorists and workers. There has been an increasing frequency and severity of work zone intrusions, hostile incidents and threatening behavior by motorists toward flag persons and workers. Work zone cameras provide a deterrent to motorists who would violate temporary reductions in regulatory speed, aggressive actions toward flaggers or other workers, and other undesirable behavior within the work zone. In addition, in extreme cases of driver aggression, the work zone cameras will provide a means of recording hard evidence that can be used to aid in prosecution of violators.

Work Zone Cameras will have the greatest benefit when workers or flaggers are exposed to live traffic without positive protection. Work Zone Cameras should be considered as part of a work zone intended for daily operations type work. This would include preventative maintenance paving, small culvert replacement, traffic signal work, bridge maintenance, bridge inspection, mobile operations and other operations that require a daily set up and take down of the work zone. Work Zone Cameras may be considered for any intermediate or long term operation that involves alternating one way traffic with flaggers or temporary traffic signals. Work Zone Cameras shall be required where Automated Flagger Assistance Devices (AFAD's) are proposed. Long duration work with workers behind positive barrier should not use Work Zone Cameras, unless there is a special circumstance that would allow for their use (Example: Setting steel using flaggers on a project that otherwise has traffic and workers separated by concrete barrier)

Work Zone intrusions include the following situations:

- Encroachment by any mode of travel into the transition area or activity area
- Vehicular contact with project personnel or equipment (including temporary impact attenuators), or channelizing devices used for delineation of the transition areas and activity area
- Vehicular contact with a flagger, "Stop/Slow" paddle, automatic flagging device (AFAD's), or temporary signal
- Vehicular encroachment associated with dis-obeying flaggers, including closed lanes or lanes used by opposing traffic
- For mobile operations, any vehicular encroachment from the 1st (most upstream) truck mounted impact attenuator shadow vehicle to the work area
- Vehicular contact with project personnel or equipment associated with setup of advance warning signs

Hostile encounters include the following situations where a person:

- Purposely intrudes a work zone
- Makes threatening gestures or comments
- Drives toward or hits a flagger or person performing flagging operations, vehicle, equipment, or traffic control device in an attempt to intimidate, harm or damage the flagger or object
- Motorist exits his/her vehicle and approaches a flag person or other crew member in an aggressive manner
- Displays a weapon or implies that he/she is armed
- Causes a crew member or flag person to feel threatened for his/her safety

Any project specifying the use of Work Zone Cameras shall include the special note "Use of Work Zone Cameras". This special note provides additional details to the contractor and inspection staff for the setup, procedures for recording video, and protocol for handling video evidence in the case of an intrusion or hostile encounter. A minimum of number two (2) cameras each shall be provided at each location specifying the use of work zone cameras. Design and layout shall be in accordance with the details provided in the special specification.

PIN X051.59

SPECIAL NOTE
USE OF WORK ZONE CAMERAS

Camera setup in each work zone is subject to the nature of the work and available locations which do not pose a hazard or conflict with the safe operation of proposed work and equipment. Cameras and associated equipment should not be placed in an area where they could be struck by traffic or moving equipment, or where they pose sight distance restrictions or other safety concerns. Cameras should be positioned to have full view of traffic activity within the work zone, and will be used primarily to record video of flaggers (or other traffic controlling devices) and traffic entering and exiting the work zone. The location of the camera installation is to be recommended by the contractor and approved by the Engineer in Charge for each camera setup. Additionally:

- Mount cameras on a stationary piece of equipment or tripod so the recorded video produces a clear and consistent image.
- A minimum of two (2) cameras shall be used at each work zone and positioned so that one camera captures a direct view of vehicles entering the work zone and the other camera captures a direct view of vehicles departing the work zone.
- Direct cameras toward the approach and flagger station if one exists.
- Direct at least one camera toward the work crew when they are working adjacent to live traffic and no positive protection is provided.

General Requirements for the use of Work Zone Cameras:

1) Advance warning sign NYW8-47 “WORK ZONE CAMERA” shall be placed within the advance warning sign package according to the details shown in HDM 16.3.8 for short term closures and mobile operations. Sign size shall be in accordance with the MUTCD for warning signs for the applicable roadway type.
2) Work Zone Cameras are not to be used as a substitute for any other safety device or work zone requirement.
3) All video and audio recordings shall be the property of the State of New York, and shall not be used for any purpose outside those deemed acceptable by the State.
4) Each day that a work zone camera is installed and in operation, a Work Zone Surveillance Report shall be completed by NYSDOT staff for each work zone setup to document details of the Work Zone Camera in use. The form shall be submitted with the Daily Work Report.
5) Each day that a work zone camera is installed and in operation, the camera and associated mounting hardware shall be cleaned and disinfected with appropriate materials/chemicals prior to daily setup, and again upon removal at the end of the day in accordance with current NYSDOH coronavirus cleaning guidance (e.g. Interim Guidance for Cleaning and Disinfection of Public Transportation Settings for COVID-19)

https://coronavirus.health.ny.gov/system/files/documents/2020/03/cleaning_guidance_public_transportation.pdf

6) If there is any work zone intrusion, hostile encounter, or event where law enforcement is called, the Engineer in Charge and the Regional Construction Safety Coordinator shall be immediately notified. The contractor will remove the storage card and hand it over to the EIC or another NYSDOT representative in the presence of police. The contractor will then immediately replace the removable storage card with a new card and turn on the camera again. NYSDOT staff shall fill out and submit the Work Zone Surveillance Report, including the Incident Notes at the bottom of the form and submit it with a Daily Work Report.

WORK ZONE SURVEILLANCE REPORT

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

				Incident	☐ **Yes** ☐ **No**	**Incident #**	
Date		**Project**				**D number**	
County		**City / Town / Village**				**BIN**	
Route		**Begin Ref Mrkr.**				**End Ref Mrkr.**	
Work Activity			☐ **Shoulder** ☐ **2-Lane** ☐ **Multi Lane** ☐ **Ramp**				
Work Zone Duration	☐ **Mobile** ☐ **Short Term Stationary** *(> 1 hour)*		☐ **Short Duration** *(up to 1 hour)* ☐ **Intermediate/Long term Stationary**				
Traffic Control # 1	☐ **Flagger** ☐ **Spotter** ☐ **AFAD** ☐ **Temp Signal**		**Direction**		☐ **North** ☐ **South** ☐ **East** ☐ **West**		
Camera ID		☐ **Tripod** ☐ **Equipment – Mount**					
Flagger # 1 Name			**Flagger #1 Title**				
Traffic Control # 2	☐ **Flagger** ☐ **Spotter** ☐ **AFAD** ☐ **Temp Signal**		**Direction**		☐ **North** ☐ **South** ☐ **East** ☐ **West**		
Camera ID		☐ **Tripod** ☐ **Equipment – Mount**					
Flagger #2 Name			**Flagger #2 Title**				
Traffic Control # 3	☐ **Flagger** ☐ **Spotter** ☐ **AFAD** ☐ **Temp Signal**		**Direction**		☐ **North** ☐ **South** ☐ **East** ☐ **West**		
Camera ID		☐ **Tripod** ☐ **Equipment – Mount**					
Traffic Control # 4	☐ **Flagger** ☐ **Spotter** ☐ **AFAD** ☐ **Temp Signal**		**Direction**		☐ **North** ☐ **South** ☐ **East** ☐ **West**		
Camera ID		☐ **Tripod** ☐ **Equipment – Mount**					
Notes							
Begin Time	☐ am ☐ pm		**End Time**	☐ am ☐ pm			
EIC		**Person Completing Report**					

WORK ZONE CAMERA POLICY GUIDANCE

- ☐ **Ensure batteries are fully charged and support equipment is functioning as designed prior to deployment.**
- ☐ Cameras shall remain focused on the Flagger/Traffic Control Station as illustrated in the details attached to the special specification, unless documenting activities immediately following a "Work Zone Intrusion" or a "Hostile Encounter". After assessing injuries / alerting emergency services as needed, supervisor on site may direct camera to be rotated as appropriate to document activities immediately following a "Work Zone Intrusion" or a "Hostile Encounter".
- ☐ Information, including other photos gathered at the scene shall be documented on this report. This information will also be helpful in completing the other required reports (as appropriate) including, but not limited to; Work Zone Incident Reporting Form, Report of Workplace Violence Incident / Concern, SAF1c Report of State Vehicle / Equipment Accident, SAF9's Supervisor's Incident Analysis Form & MV 104's Report of a Motor Vehicle Accident.
- ☐ Scan in / e-mail Work Zone Camera Report as required in the Special Note "Use of Work Zone Cameras" as follows:
  - First day in operation (No event): At the conclusion of the work–day.
  - Event: As soon as possible. **Construction Supervisor, Regional management and Employee Safety & Health shall be notified immediately of the event and may give further instruction(s).**

INCIDENT NOTES

Time of Event	: ☐ am ☐ pm	**Type of Incident:** ☐ **Work Zone Intrusion**	☐ **Hostile Encounter**
Description of event *(Note any persons / vehicles & description / witnesses)***:**			

SP-13. REQUIREMENTS FOR BRIDGES WITH LINK SLABS

Requirements for Bridges with Link Slabs

13.1 GENERAL

The term ‘Link Slab’ shall be as defined in the NYSDOT Bridge Manual.

The use of a link slab at a support with a skew angle that exceeds 45 degrees is prohibited.

For the purposes of analyzing a structure’s global behavior and design of the superstructure, bearings, substructures, and foundations, a link slab shall be assumed to act as a pinned connection between the spans it joins. This results in a superstructure that behaves as simply supported at the link slab locations when subject to vertical loads yet articulates similarly to a continuous multi-span superstructure when experiencing horizontal forces and thermal movements. This behavior of the superstructure is referred to as contiguous.

The use of link slabs on a bridge in place of deck expansion joints creates a contiguous segment. A contiguous segment shall be defined as all the spans, whether they be simple span units or continuous span units, that have been joined by link slabs. A contiguous segment’s length is the distance between the expansion joints located at the beginning and end of the segment.

Each contiguous segment must contain at least one substructure with fixed bearings. In certain situations, it may be advantageous to have multiple substructures, within a contiguous segment, with fixed bearings. When using this bearing arrangement, the forces generated due to the superstructure’s thermal movements shall be accounted for in the analysis/design of the fixed bearings, superstructure, substructures, and foundations.

Type E.B. bearings (deformation expansion, sliding expansion, fixed), conforming to NYSDOT standards, are the only types of bearings permitted for use underneath link slabs. For piers with two lines of bearings supporting two adjacent span ends, at least one line of bearings must be expansion. Sliding expansion bearings, which use a stainless steel over PTFE slip plane, may be necessary for longer contiguous segments. Details and material requirements for sliding expansion bearings are provided in Part 7. Type E.B. sliding expansion bearings shall be in conformance with NYSDOT Special Specification Item 565.20310003. The final bearing configuration for a contiguous segment shall be in place prior to the construction of any link slab within a segment. This requirement shall be noted in the contract plans.

The required design procedure uses a simplified approach where the girder’s end rotation is applied to the link slab at the ends of the debonded zone to induce a uniform bending moment throughout the debonded portion of the link slab. Although link slabs are assumed to behave as a pinned connection between spans when analyzing the structure’s global behavior, they shall not be assumed to act as pinned for the purposes of designing the actual link slab or its anchorage. Link slabs shall be designed following the assumptions, procedures, and requirements used and stated in the UHPC Link Slab Design Example provided in Part 7.

Link slabs shall be detailed in accordance with the UHPC Link Slab Details provided in Part 7. The type of rebar corrosion protection used in link slabs shall match that of the superstructure slab. An expansion joint shall be provided in any concrete component placed on top of a link

slab (barrier, sidewalk, curb, etc.). Within the debonded zone, a bond breaker shall be applied at the interface of the link slab's debonded zone and concrete component(s). Any vertical, or inclined, anchorage reinforcement that protrudes from within the link slab's debonded zone shall be debonded. These details are necessary for the link slab to strain as designed and to prevent excessive cracking of any adjoining concrete component(s).

If a link slab is constructed utilizing staged construction, it may be necessary to install temporary links so that the behavior of the superstructure at the supports is uniform across its entire width. Temporary links shall be designed, detailed, and installed so that the girders where the link slab has not yet been installed will rotate at the same elevation as the centroid of the link slab that is already in place, rather than rotating at the bearings.

13.1.1 BEARING ANALYSIS ASSUMPTIONS

In the context of Section 14 of the NYSDOT LRFD Bridge Design Specifications, a bearing's resistance to movement, no matter how that resistance is generated (deformation, sliding friction, etc.), shall be considered a friction force. For the purposes of this Special Provision, the portion of a bearing's friction force attributable to surfaces sliding past one another shall be taken to be the static friction force, or the force required for stationary surfaces to initiate movement. The bearing's friction force is dependent on various mechanisms such as bearing type, geometry, material properties, pressure, and temperature. The friction force of all bearings shall be accounted for in design of the superstructure, link slabs, substructures, foundations, connections, and the bearings themselves.

Both upper bound and lower bound material property assumptions that effect the behavior of the bearing need to be considered when determining the controlling load effects on a particular bridge component. The bearing material property ranges found in Section 14 of the NYSDOT LRFD Bridge Design Specifications shall be used.

Type E.B. deformation expansion bearings provide horizontal resistance by shear deformation of the elastomer. A bearing's resistance to deformation fluctuates due to variations that occur in the elastomer's shear modulus. As such, both upper bound and lower bound values for the shear modulus need to be considered when determining the load transferred through the bearing, as well as the restraint that the bearings provide to other bridge components.

Type E.B. sliding expansion bearings provide horizontal resistance by either deformation, when the friction force does not exceed the deformation force, or by sliding when the friction force exceeds the deformation force. Both of these behaviors need to be considered when determining the load transferred through the bearing, as well as the restraint that the bearings provide to other bridge components. Being that the friction force is dependent on the materials in contact, surface finish, pressure, temperature, and presence of contaminants, the assumptions used to determine the friction force need to account for both upper bound and lower bound values of all contributing factors. To account for both deformation and sliding, the bearings shall be modeled assuming a linear spring that is limited to generating a force equal to the static friction of the sliding surfaces.

The assumed stiffness of Type E.B. fixed bearings shall be calculated as the flexural stiffness of the bearing pin in single curvature.

13.2 NEW AND REPLACEMENT BRIDGES

New and replacement bridges with link slabs shall be designed in accordance with the NYSDOT LRFD Bridge Design Specifications, NYSDOT Bridge Manual, and Sections 11.1, 11.1.1, and this section of this special provision. A contiguous segment that is comprised of both new and/or replacement substructure(s) and existing substructures shall be considered a replacement bridge.

For the design of foundations, substructures, and bearings horizontal force effects shall be determined by using either the relative stiffness or simplified distribution methods defined below.

Relative Stiffness Method
Structural models shall be used to determine the distribution of applied horizontal forces to the substructures and bearings based on the relative stiffness of all participating structural components. At a minimum, models shall include the multi-directional stiffness of the superstructure, bearings, and substructures. Each component's assumed stiffnesses need to be considered such that the controlling force effects are generated at each substructure. In order to meet this requirement multiple structural models are typically needed to envelope variations in component stiffnesses. Given the complexities of performing a structural analysis where an individual component's stiffness alters the distribution of forces, combined with the need to vary stiffness assumptions, the relative stiffness method often lends itself to the use of structural modeling software.

Simplified Distribution Method
Assume that all applied horizontal forces, except for friction and uniform temperature, act on the fixed support. The horizontal forces acting on expansion supports shall be computed using the tributary length of the superstructure, except for friction and uniform temperature. Forces due to friction and uniform temperature shall be calculated under the assumption that the fixed support, and its bearings, are infinitely stiff while using stiffness assumptions at expansion supports that produce the controlling force effects at each substructure. The simplified distribution method shall not be used when multiple substructures within a contiguous segment have fixed bearings.

All forces due to external restraints, such as friction of sliding approach slabs and soil pressure acting on nonconventional abutments, shall be included when determining the thermal forces acting on the substructures. Forces due to external restraints shall be ignored when determining all the other forces acting on the substructures.

Reinforced concrete columns, solid pier stems, and abutment stems shall be modeled using partially cracked section properties that are assumed to be equal to one-half the uncracked transformed section. The load factor for uniform temperature (TU) shall be taken as 1.0 for all the Strength and Service load combinations.

All seismic provisions for new and replacement bridges shall apply and bearing pins shall not be designed to 'fuse' during a seismic event.

The requirements of NYSDOT LRFD Bridge Design Specifications Article 4.7.4.4 shall apply to all substructures that are located underneath a link slab. The length (L) in equation 4.7.4.4-1 shall be taken as the distance from the centerline of the support, for which the support length is being computed, to the furthest expansion joint or jointless abutment of the contiguous segment.

13.3 EXISTING BRIDGES

When link slabs are installed on an existing bridge, a contiguous segment is formed which results in changes to the structure's global behavior. A structural analysis is required to quantify the changes in the horizontal forces acting on existing substructures and foundations. The results of this analysis, along with any other sources of additional load, shall be used to determine if any of the existing substructures, including their foundations, need to be strengthened or replaced, to meet the projects requirements. The Department uses both a simplified analysis and a refined analysis for analyzing existing bridges retrofitted with link slabs. A refined analysis shall be used only if a simplified analysis shows an increase in the longitudinal forces acting on a substructure.

The requirements of NYSDOT LRFD Bridge Design Specifications Article 4.7.4.4 shall apply to all substructures that are located underneath a link slab. If a substructure does not meet these requirements in its existing state, the bridge seat shall be widened or restrainers shall be installed. Restrainers shall be capable of supporting the spans at the extreme limit state if unseating of the superstructure were to occur. Additionally, restrainers shall not transfer horizontal forces from the superstructure to the substructures. The length (L) in equation 4.7.4.4-1 shall be taken as the distance from the centerline of the support, for which the support length is being computed, to the furthest expansion joint, or abutment, adjacent to the contiguous segment.

13.3.1 SIMPLIFIED ANALYSIS OF CONTIGUOUS SEGMENTS

A simplified analysis only considers the relative change in longitudinal forces acting on the substructures due to the installation of link slabs, new bearings, elimination of longitudinal deck joints, and any other relevant superstructure and substructure modifications.

The premise of a simplified analysis is that as long as the existing structure is competent and the installation of link slabs, along with any other relevant modifications, does not increase the forces on the substructures, then using a simplified analysis for link slab retrofits is a valid way to eliminate bridge joints without needing to analyze each and every component of the existing structure. If the new factored longitudinal forces are found to be greater than the existing factored longitudinal forces, a refined analysis shall be used to determine if any of the existing substructures, and their foundations, need to be strengthened, or replaced, to meet the projects requirements.

When performing a simplified analysis, it is important that the forces be calculated using the same methodology, assumptions, and procedures for both the existing and proposed condition. The exact methodology for applying the forces is inconsequential, as the analysis is looking for the change in applied forces, not the magnitude of the forces. A consistent approach to how the forces are calculated is necessary to accurately capture how the link slabs, along with any other relevant modifications to the structure, alter the forces acting on the substructures. The longitudinal forces used in a simplified analysis shall be those acting at the bridge seat elevation.

The requirement to perform a seismic analysis, meet seismic requirements, and satisfy the Extreme Event I load combination is waived when using the simplified method.

All bearings shall be designed according to the NYSDOT LRFD Bridge Design Specifications and NYSDOT Bridge Manual. All fixed bearing pins shall be designed to resist only the Strength I, III, and V load combinations. Additionally, fixed bearing pins shall not be designed to meet the

requirement for 15% of the total vertical force as stated in Article 14.7.9.2 of the NYSDOT LRFD Bridge Design Specifications. The minimum pin diameter given on the NYSDOT BD Sheets is waived and the smallest available pin diameter that satisfies the design shall be used; over-designing the pin is prohibited. This is required so that during a seismic event the bearing pins will act as a 'fuse', essentially isolating the superstructure from the substructure in the longitudinal direction, preventing excessive damage to the fixed substructure(s).

Given that a simplified analysis only considers the changes in longitudinal forces acting on the substructures, all substructures must be provided with restraint to the superstructure's movement in the lateral direction by the use of guides or keeper angles on the bearings, or shear block(s) on the bridge seats of all substructures, including those with fixed bearings. This results in the transverse loads being shared by all the substructures predominantly along the strong axis of the substructures and foundations. Lateral restraints shall be designed to allow transverse temperature related movement of the superstructure and be aligned with the superstructures assumed direction of thermal movement.

Analysis requirements for comparing the longitudinal forces acting on existing substructures are as follows:

1. Structural models shall be created, for the existing and proposed conditions, that include the abutments, piers, bearings, and superstructure. The objective of these models is to get an accurate assessment of how the longitudinal loads are distributed to the substructures, within a contiguous segment, based on the superstructure's continuity and the relative stiffness of all the supports, which shall include the combined stiffness of the bearings and columns, or stems, at each substructure. An appropriate level of refinement shall be provided in the models to meet this objective.

2. Substructures that are skewed 20° or less to the assumed direction of applied horizontal loads may be modeled as a single element whose section properties represent the combined stiffness of the columns when bending about the substructure's longitudinal axis. Substructures that exceed this skew limit shall be modeled such that bi-axial bending and the corresponding substructure stiffness are accounted for.

3. Reinforced concrete columns, solid pier stems, and abutment stems shall be modeled using partially cracked section properties that are assumed to be equal to one-half the uncracked transformed section.

4. Existing and proposed longitudinal loads shall be computed in accordance with the NYSDOT LRFD Bridge Design Specifications. The load factor for uniform temperature (TU) shall be taken as 1.0 for all the Strength load combinations.

5. When determining braking forces, it shall be assumed that the direction of travel will not change in the future, and that the actual number of lanes that is currently carried, or will be carried at the completion of the project, is used, in lieu of using the number of design lanes that fit within the roadway width.

6. For existing superstructures that are supported on steel rocker bearings or steel sliding bearings, it shall be assumed that 100 percent of the applied longitudinal forces act on the fixed support while each expansion support resists a longitudinal force proportional to their supported tributary length of the superstructure. The sum of longitudinal forces

resisted by all substructures will exceed the total applied longitudinal force to the superstructure.

7. All forces due to external restraints, such as friction of sliding approach slabs and soil pressure acting on nonconventional abutments, shall be included when determining the thermal forces acting on the substructures. Forces due to external restraints shall be ignored when determining all the other forces acting on the substructures.

13.3.2 REFINED ANALYSIS OF CONTIGUOUS SEGMENTS

A refined analysis shall consider all the forces acting on the substructures and their foundations including the effects of link slabs, bearings, and any other relevant superstructure and substructure modifications. These forces shall be determined using a relative stiffness analysis where the distribution of lateral loads is a function of the multi-directional stiffness of the superstructure, bearings, and substructures.

The capacity, or resistance, of all existing substructures and foundations then needs to be evaluated for the new factored loads. If any of the existing substructures or foundations of bridges originally designed with the NYSDOT LRFD Bridge Design Specifications no longer meet their original design code, they shall be strengthened or replaced as part of the scope of the project. For all other bridges, if any of the existing substructures or foundations do not meet either the NYSDOT LRFD Bridge Design Specifications, or the NYSDOT Standard Specifications for Highway Bridges using HS 20 loading, they shall be strengthened or replaced as part of the scope of the project.

All bearings shall be designed according to the NYSDOT LRFD Bridge Design Specifications and the NYSDOT Bridge Manual. All fixed bearing pins shall be designed to resist only the Strength I, III, and V load combinations. Additionally, the pins shall not be designed to meet the requirement for 15% of the total vertical force, as stated in Article 14.7.9.2 of the NYSDOT LRFD Bridge Design Specifications, and the minimum pin diameter given on the NYSDOT BD Sheets is waived. These exemptions are required so that during a seismic event the bearing pins will act as a ‘fuse’ that limits the applied seismic load on the existing fixed substructure(s) to be only slightly greater than the non-seismic loads.

The requirement to perform a seismic analysis, for the purposes of determining the seismic lateral loads, is waived when using the refined method. Rather, the seismic loads used for either the Extreme Event I load combination (if using LRFD), or Group VII (if using LFD), shall be taken as the lateral resistance of the bearing pins. The lateral resistance of the bearing pins shall be the only transverse and longitudinal loads included in seismic load combinations.

The lateral resistance of a bearing pin shall be determined using equation 6.7.6.2.1-1 of the NYSDOT LRFD Bridge Design Specifications with the following modifications: 1) M_u replaced by V_u times the height of the bearing pad (h_{pad}) (combined thickness of elastomeric layers and internal steel plates), 2) F_y replaced by the ultimate strength (F_u) of the steel pin, 3) resistance factors removed, and 4) less than or equal to 0.95 replaced by equal to 1.0. The equation shall then be solved for V_u and the solution used as the lateral resistance of a single bearing pin. The modified equation is as follows:

$$\frac{6.0V_u h_{pad}}{D^3 F_u} + \left(\frac{2.2V_u}{D^2 F_u}\right)^3 = 1.0$$

Analysis requirements when performing a refined analysis are as follows:

1. A structural model for the proposed conditions shall be created that includes the abutments, piers, bearings, and superstructure. The objective of this model is to get an accurate assessment of how the horizontal loads will be distributed to the substructures, within a contiguous segment, based on the superstructure's stiffness and continuity, as well as the relative stiffness of all the supports, which shall include the combined stiffness of the bearings and columns, or stems, at each substructure. An appropriate level of refinement shall be provided in the model to meet this objective.

2. Reinforced concrete columns, solid pier stems, and abutment stems shall be modeled using partially cracked section properties that are assumed to be equal to one-half the uncracked transformed section.

3. The proposed horizontal loads shall be computed in accordance with the appropriate design code, as defined above. When using the NYSDOT LRFD Bridge Design Specifications, the load factor for uniform temperature (TU) shall be taken as 1.0 for all the Strength load combinations.

4. When determining braking forces, it shall be assumed that the direction of travel will not change in the future, and that the actual number of lanes that is currently carried, or will be carried at the completion of the project, is used, in lieu of using the number of design lanes that fit within the roadway width.

5. All forces due to external restraints, such as friction of sliding approach slabs and soil pressure acting on nonconventional abutments, shall be included when determining the thermal forces acting on the substructures. Forces due to external restraints shall be ignored when determining all the other forces acting on the substructures.

SP-14. DOCUMENT CONTROL MANAGEMENT AND REPORTING

Overview

The Design-Builder shall furnish, maintain, manage, and provide licensing for a web-based document control software to prepare, electronically submit, process, comment, and send project documents, including design drawings, shop drawings, requests for information, meeting minutes, CPM schedules, letters, management plans, and other standard NYSDOT Design-Build contract business practices as requested by the Department's Project Manager. The software shall provide a means to report in "real-time" the status of design and construction deliverables and shall utilize ball-in-court capability. The web-based tool shall allow simultaneous access across the project including the Design-Builder, the Department, and any of the Department's oversight team members. User access shall be customized as required by the Design-Build team on a "per project role" basis. The web-based tool shall report, at a minimum, the metrics listed here-in, and it shall be the responsibility of the Design-Builder to ensure that the metrics reported to the project team are adequate to provide an accurate picture of the current status of the Project. At a minimum, data reported on the web-based tool shall be updated and presented at weekly progress meetings.

The web-based tool shall provide a means to notify the Project team when design and/or construction deliverables are submitted and shall include a hyperlink directing the User to the respective documents. The software shall timestamp the correspondence and log the date/time of each submission. Final project documents shall be uploaded to ProjectWise in accordance with RFP, Part 3, Section 2.7 Project Wise.

Reporting Dashboard

The web-based tool shall provide a dashboard style interface which allows simultaneous access across the Project team for clear and concise reporting of Project information. The Dashboard shall report on, but not be limited to, the following items as they relate to design and construction status.

• Design Deliverables Submitted To-Date

• 4-Week Design Deliverable Look Ahead

• 90-Day Design Deliverable Look Ahead

• Status of Design Reviews by the Department

• Status of Released-for-Construction (RFC) Documents

• Status of Notice-of-Design Changes (NDCs)

• Status of Design Requests-for-Information (Design RFIs)

• Status of Design Non-Conformance Reports (Design NCRs)

• Status of Construction Requests-for-Information (Construction RFIs)

• Status of Construction Submittals

• Status of Construction Non-Conformance Reports (Construction NCRs)

Design Review Interface

The web-based tool shall facilitate a means for the Department to provide consultation and written comment and shall report on the Design Review Status in order for all parties to quickly identify the status of any deliverable at a given time. At the Design Management Workshop, the Design-Builder shall present the proposed workflow to the Department to establish proper distribution of documents and execution of the established workflow.

All costs associated with furnishing, maintaining, and using the software, including user licenses and training for both the Design-Builder and the Department, shall be included in the price bid for Item 800.01000015, *Design Build – Design Services*.

SP-15. BACKUP ALARMS

BACKUP ALARMS

All requirements of NYSDOT ***Spec 619-2.02, Subsection F***, are in effect with the following additional requirements:

The operational audible backup alarm shall be a "smart alarm" design backup alarm that produces multiple sound frequencies (broadband sound/white sound) and self-adjusts the alarm volume according to ambient noise levels. These alarms shall be utilized on all equipment requiring backup alarms as per the above noted Standard Specification. The backup alarms shall be installed according to manufacturer's instructions and are to perform as per product specifications. The performance of these alarms shall be demonstrated on-site to a representative of New York State Department of Transportation for the substantiation of effective perception above ambient sound levels and must be approved by the Resident Engineer prior to use on the project. The furnishing and retrofitting of these alarms onto equipment shall be at no additional cost to NYSDOT. No separate payment will be made for this work.